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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 331

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23 December 1981

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LABOR SPOKESMAN WARNS OF LOGGING THREAT TO RAINFOREST

Brisbane THE COURIER-MAIL in English 6 Oct 81 p 37

[Text] Tropical rain forest areas in far north Queensland would be extinct in five years if logging continued at its present rate, the opposition lands spokesman, Mr Kruger, claimed yesterday.

Mr Kruger said a large amount of research should be done before any further logging was accepted in virgin forests.

"At the moment, five timber millers are exploiting the Mount Windsor Tableland (40km northwest of Mossman) and there is very little natural rain forest remaining," he said.

"The State Government should impose rigid controls on the logging in the area to ensure that we save what we have left.

"A limited number of logs can be taken out of the natural rain forest areas without damaging the ecology, but at the moment, timber millers are chasing every log.

"They won't be able to continue without destroying the last of our rain forests."

Mr Kruger said that in the past, very little money had been allocated in the State budget to the reafforestation of these areas.

He said most of Queensland's rain forest areas, between Cooktown and Ingham, had been denuded for agriculture.

"It's in the interest of many people that the last of these natural areas be preserved," Mr Kruger said.

The State Lands Minister, Mr Glasson, said yesterday Mr Kruger's comments were irresponsible and uninformed.

"I don't suppose he mentioned that 60,000 acres (24,000 hectares) of tropical rain forest in the area had been put aside as national park," he said.

"The State Government has taken all necessary steps to ensure that a good part of the rain forest is preserved.

"A very thorough study of the area and the timber industry has just been completed and it was put before Cabinet last week.

"Economists and scientists from all walks of life have been consulted and I am quite sure the appropriate action has been taken."

Mr Glasson said the report should be tabled next week.

CSO: 5000/7510



## CITIES' POLLUTION PROBLEMS REVIEWED

Madras THE HINDU in English 10 Nov 81 p 17

[Text] Perhaps the only recorded case of a death because of excessive noise occurred a few years ago in Calcutta. One of the most promising writers in Bengali, Narayan Gangopadhyay, passed away even before he had crossed the middle fifties.

Ironically enough, the death took place at precisely the period when the supposedly cultural capital of the country was at its best, during the Pujas. Mikes were blaring night and day, driving people in many areas into a state of dull stupor. Gangopadhyay knew he was going to die, and probably fearing inaction, had not even approached the police.

Barely a week before the swinging season, he had written in his weekly column in a contemporary: "This time, I do not think I can survive the torture of the loudspeakers." Days later, his glum prophecy came true and Calcutta had its first martyr to noise.

After this, the administration at any rate could not very well deny that noise pollution had already reached abominable levels in Greater Calcutta and that further inaction could prove fatal.

## Lesson Not Learnt

Unfortunately, the lesson has remained surprisingly unappreciated. Only months ago, another stalwart of Bengali literature, Suobdh Ghosh, felt a pain in his chest at his Salt Lake home and later went into a coma, from which he never returned. During the entire period of his heart attack, mikes had been playing in the locality and one of his sons later complained bitterly about this.

In neither case, the conscience of the Government of West Bengal--under the Congress (I) and the CPI (M), respectively, at the time of the deaths--was stirred into any kind of action. Yet, the use of loudspeakers is supposed to be regulated by the police, who are also expected to prevent their overuse during the crisis Puja periods.

If these are only two recorded victims of noise pollution, there is no way of course, of knowing how many lesser mortals might be on their untimely way to a quick grave, unregretted and unsung by the administration every year all over the State.

The Indian Science Congress sailed into its 68th year early this year and held its session at Varanasi. The focal theme was environmental pollution. Like most other problems which have assumed critical proportions here as well as elsewhere, local experts find that they know what is happening abroad far better than here. Apart from occasional snippets of alarming information laboriously garnered from different areas, not much is known.

In the eastern region, it is known, for instance, that in South Bengal, in several districts the presence of hydro-carbons in the dust was computed at around 30 to 35 percent, whereas the humanly tolerable level had been left way back--five to 10 percent only.

#### Ground Water Pollution

In the heavily industrialised Hoogly district, following certain complaints, it has been found that even groundwater sources, let alone rivers, had become polluted. The agricultural yield had fallen substantially in several areas, despite the massive injections of fertilizers to coax the soil into giving its familiar best.

Further away in Bombay, the journal "New Scientist" once reported that fish, meat and vegetables called cluster beans sold in the city, contained an excessively high level of toxic mercury. Behind the metallic pollution of food in Bombay, it was explained, lay the sad fact of a reckless discharge of effluents by various industries into the river systems. Cadmium, lead and copper also present in substantial proportions in the vegetables, complete the dirty business of wholesale food adulteration.

#### Industrial Contamination

In Calcutta again, it has been officially admitted that the Victoria Memorial Hall would be scarred permanently because of rampant industrial pollution. Official organisations like the Metro Transport Project and the Calcutta Metropolitan Development Authority, apparently do not observe stipulated pollution measures.

The irony is that when Lord Curzon had decided to build the hall in 1903, he had also taken care to introduce the Bengal Smoke Nuisance Act, barely two years later, with a view to protecting his beloved memorial. Clearly, Indians who have taken over can be accused of adopting a kind of ruthless attitude towards their ancient monuments. Some of the marble statues in the memorial would never regain their original colour, and the same goes for some of the magnificent paintings.

Its very foundation has developed cracks, as acidic rainfall has set off a cancer of the soil. Yet, one of the technicians associated with the three-year survey conducted by the Smoke Nuisance Department said that "we do not expect any official action to follow, although we have given in detail the remedial measures that must be taken to protect the memorial hall."

"Frankly, money would change hands at the top level and the private industry at any rate can get away with blue murder if it so chooses. Where Government departments like the MTP of the CMDA are themselves at fault, you just waste your breath complaining about them. I sometimes wonder whether we are sufficiently civilised to realise that if this goes on unchecked, it won't be just buildings and monuments tomorrow--we would begin to choke in the mess of our own polluted surroundings. Only, they cannot say that warnings were not given."

#### Cesspool

These are the random facts. Systematic studies have shown that the environment from which people draw their sustenance is rapidly becoming a highly polluted cesspool.

Calcutta probably has the credit of being the only major city where a thorough survey of the pollution problem was undertaken from January 1976 to June 1980, by the Smoke Nuisance Directorate, under the guidance of Mr S.C. Banerjee, Chief Inspector.

The area under survey consisted of the Corporation wards. The survey had been ordered by an expert committee set up to work out recommendations to modify the existing Municipal Act.

Excerpts from the report make interesting reading. The State Government to be fair, just does not have the legal or administrative equipment to fight what has already become an all-pervasive health menace.

The concentration of SO<sub>2</sub> H<sub>2</sub>S and acid aerosols are quite high in many residential and office areas. These are mostly due to automobile exhausts, rotting garbage over which there is no statutory control at present. High ground level concentration of non-toxic particulate matters is mostly due to undisciplined earth work and construction work of various agencies. High lead concentration is due to automobile exhausts, battery makers, lead-refining factories, rotary printing presses and foundries.

#### Air Pollution

"High noise level in many areas is due to transport vehicles, hammer blows, large press machines, diesel generators. High ground level concentration of offensive odour is mostly due to rotting garbage and community waste."

At a different level, where air pollution is concerned, the report notes that "there is a general tendency to disperse the air pollutants either from chimney tops or at ground level, resulting in high emission of air pollutants."

The cause of such problems is due to inadequate technology, inadequate consultancy, lack of R and D facilities, improper plant management, inadequate statutory provisions and inadequate staff of the supervisory agencies. Above all, there is a gaping management gap at the Government plant supervising consultancy and the planning levels."

The inadequacy of staff portion is certainly well applicable to the Smoke Nuisance Department itself, a tiny cubbyhole of an office, from which well-intentioned Lilliputs are supposed to take on the mighty giants of private and public sector industries.

The remedial measures mostly have to do with preventive steps aimed at checking the rampant fouling up of the atmosphere and the specifics of a new garbage disposal system, a problem that has always seemed to baffle the wizards of the corporation.

CSO: 5000/7015

ORGANIZED PLUNDER OF RICH FOREST REPORTED

New Delhi PATRIOT in English 10 Nov 81 p 4

[Text] Baripada, Nov 9 (UNI)--Organised plunder of the forest wealth in Simlipal, one of the richest forest belts in the country, has assumed alarming proportions.

Thousands of people, mostly tribals, daily hack down trees and sell them as firewood without knowing what precious species of flora they are destroying.

There had always been occasional collection of headloads of firewood from the forests but now this has grown into a regular plunder, mainly because of the indifference of forest officials.

The pillage takes place during the night. In the morning, one can see hundreds of people making their way to towns with their looted merchandise.

The wood is being sold from Rs 14 to Rs 18 a quintal, depending on the bargaining capacity of the purchasers. At some centres middlemen have sneaked into the business and are making bulk purchases from the tribals at Rs 15 a quintal. The wood is then transported to bigger towns in trucks and sold at Rs 50 a quintal.

All this goes on in spite of a vast array of forest officers, and at least three different organisations to look after the famous tiger reserve.

The three organisations have a plethora of officers to look after the affairs of the Simlipal forests. They include nine divisional forest officers, five assistant conservator of forests, one conservator of forests and one additional chief conservator of forests. These are besides an army of forest range officers and forest guards.

Yet, the looting continues unabated, and conservation has become nobody's business.

There are allegations that officers of the State-owned Development Corporation are accomplices in this plunder.

Besides ransacking the forests for firewood, the pirates take away valuable timber like rosewood sal and paisal. These have fixed buyers in the plains.

CSO: 5000/7017



## BRIEFS

**AFFORESTATION PROGRAM INITIATED**--Prime Minister Surya Bahadur Thapa initiated the afforestation programme launched to celebrate the 33rd auspicious birthday of Her Majesty Queen Aishawarya Rajya Laxmi Devi Shah by planting a Pinus Roxburghii sapling at Bhaisepati village of Saibu village panchayat this morning, reports RSS. The afforestation programme launched jointly by Her Majesty's 33rd auspicious birthday celebration committee and the Afforestation office of the Forest Department was participated in by ministers, office bearers and members of Her Majesty's birthday celebration committee, officials of the Royal Palace and Forest Ministry, panchas and the local people. Altogether 1,470 different varieties of saplings were planted in an area stretching over eight ropanis of land (0.4 hectares), it is learnt. The land made available by Saibu village panchayat for the afforestation office. Technical assistance has also been made available for preservation of the saplings planted. [Text] [Katmandu THE RISING NEPAL in English 7 Nov 81 pp 1, 6]

CSO: 5000/4905



# LABOR PARTY PLEDGES STRONG STAND ON ENVIRONMENTAL ISSUES

Christchurch PRESS in English 29 Oct 81 p 26

[Text]

Auckland

The Labour Party has pledged to pass legislation if it becomes the Government to ensure that the Commission for the Environment can "speak out fearlessly."

The Deputy Leader of the party (Mr Lange) said at a meeting in Howick that the Government had made it known its displeasure with the commission when the commission performed its auditing role, especially in relation to the "think big" projects.

Presenting Labour's environmental policy, Mr Lange said that the commission existed as "a creature of a Cabinet minute, a very uncertain future indeed."

Labour would make the commission legislatively independent. The commission and not the Cabinet would decide when an environmental-impact report was required.

Mr Lange said, "We are going to give the commission its integrity and independence by legislation so that it can be highly mobile, effective, and hard-hitting. Certainly at times it will embarrass us as government but that means the commission is doing its job."

Mr Lange said that present restrictions which stopped the commission from investigating social and economic aspects of projects

would be ended. The commission would have an important and expanded role and its investigations, apart from being independent, would be broadened.

Labour would ensure that all environmental and planning legislation would bind the Crown.

Labour would also reform the Environmental Council to ensure that it was truly independent and able to back up the Commissioner for the Environment in his role as public advocate.

The council, which includes representatives of environmental groups, would no longer have Government representatives on it and would provide external, independent advice to the Government on environmental matters. It would act as a guardian of the environment.

Labour saw the environment as being as much concerned with jobs, industry, health, and safety as it was with flowers and endangered species. The National Party regard the environment in an isolated fashion, separate from economic issues.

Labour would also review and consolidate all planning and environmental legislation.

Under National, a robber economy had developed. Labour would build a sustainable economy where con-

servation and development were fully integrated.

Details of Labour's policy include:

- Inventories would be established of wetlands and rivers with special qualities. Legislation would protect rivers identified as having special qualities.

- The Water and Soil Conservation Act, 1978, and the Soil Conservation and Rivers Control Act, 1941, would be revised and consolidated.

- All legislation relating to prospecting and mining would be reviewed. Labour would ensure that the review guarantees effective public participation.

- All mining proposals, particularly large-scale open-cast schemes, would be carefully scrutinised to ensure that they are in New Zealand's interest and represent the best use of land resources. Labour would reject large-scale open-cast mining on the Coromandel Peninsula.

- A resource recovery and management unit would be established in the Trade and Industry Department. It would investigate recycling and would initiate legislation relating to matters such as the banning of non-returnable bottles. Tax reform, loans, interest rates, and

grants would make conservation and recycling more attractive to industry and commerce.

- The National Development Act would be repealed.

- The "more environmentally sound" low-dam hydro-electricity scheme on the Clutha River would be supported "if it was practicable to change the decision."

- The price of electricity to South Island domestic consumers would be reduced by 25 per cent.

- An independent committee would be established to evaluate overseas reports and studies about the possible danger from the use of the chemical 2,4,5-T. The committee would consider whether any form of inquiry should be conducted in New Zealand and would advise generally on the question. A clear, firm decision on the matter would be made within a year of the committee's reporting.

- Legislation would be enacted to free coastal and inland waters from pollutants. A working party under the Environmental Council would prepare a scheme for protecting the coastline, coastal waters, and the seabed.

- The Town and Country

Planning Act would be amended so that the Minister of National Development would be able to advise the Planning Tribunal that a particular issue was of national importance and should be dealt with as a matter of priority. The Government would not be able to over-ride the tribunal's decision or limit appeal in the courts.

- Labour would recognise the "valuable" work done for the environment by volunteer groups, would encourage local authorities to support such groups, and would offer accommodation for environment centres in main cities. Labour "sees volunteer environmental organisations as the Minister's best friends and partners in a common cause, not as threatening enemies from whom information must be kept."

Mr Lange said that citizens would be encouraged to play an active role in environmental planning. This would be aided by freedom-of-information legislation, an education programme on public participation in environmental matters, support for volunteer groups, and better arrangements for responsibilities in Government departments.

## CLEAN AIR AMENDMENT BILL TIGHTENS POLLUTION CONTROLS

Christchurch PRESS in English 24 Oct 81 p 12

[Text]

The Clean Air Amendment Bill, given its first reading in Parliament this week, tightens controls on pollution and allows for special assistance to householders to convert to less polluting fuels.

The bill did not issue from special pollution problems in Christchurch, but its measures will have effect there.

It gives power to the Health Department to close industries not complying with the terms of their licences, and introduces a new method of measuring noxious emissions at night-time — designed to prevent the practice of heavy night-time discharges which cannot at present be proved.

It was generally regarded that Health Department officers had the power under the Clean Air Act to shut down processes which were hazardous to health, said the Minister of Health (Mr Gair) but a 1978 case showed that this was not so, and the amendment rectified this.

Night-time emissions under the act could not be adequately policed because a successful prosecution depended on an "occupier knowingly" failing to meet his licence obligation. The wording of the act also excluded the use of a special photo-electric method of

measuring pollution. This method detected pollution at night.

Under the bill there is no longer a need to prove that the occupier acted knowingly.

Mr Gair said that the special subsidies to local authorities to help them make loans or grants to people wishing to convert from polluting fuels, was an admission of the Government's responsibility to ensure that the "right things" were done with the minimum delay.

The \$300,000 annual grant to Christchurch local authorities last month to permit interest-free loans for home insulation was a precedent for this provision in the bill.

Mr Gair said Christchurch was the only clean air zone in New Zealand, and it was an enigma to some that it was far from unpolluted during the winter.

The zone had been created to control pollution from domestic open coal fires, but it had been impossible to achieve this by law, even though experts had shown that reduced burning of coal on domestic open fires was in the individual's best interests.

This was partly because of a "great reluctance" in the

public, particularly in the elderly, to convert to non-polluting electricity.

"While we accept the direction and control of these domestic emissions is primarily the responsibility of the local authority, equally central government has a responsibility to intervene," Mr Gair said.

The closing of any polluting enterprise by the Health Department was subject to appeal. The bill made the occupier of any premises strictly liable for any pollution he created, subject to the defence that all reasonable steps were taken to prevent the offence, he said.

The bill retained the "basic commonsense" requirement that industries adopt the best practicable means to control pollution. This meant industries were considered on a case-by-case basis.

"We do not expect the small polluter, by nature of his small size, to have to install expensive and complex equipment which may be necessary in the case of a large polluter," Mr Gair said.

"It is no more sensible to require uniform control standards from industry, wherever located, than to suggest that open domestic coal fires should be banned

everywhere because they are a problem in Christchurch."

The bill extends the licensing period from 12 months to any period specified in the licence. The change is to tidy up administration.

The extended period would not prevent effective control of pollution, Mr Gair said, because there were means in the act to alter the conditions of a licence.

The bill allows changes in fuel type or fuel burning equipment to be gazetted, rather than approved by Order-in-Council. This was because these were subject to fairly frequent change, and approval by Order-in-Council produced delays.

Although environmental groups wanted a say in setting licence conditions this had been dismissed by several Parliamentary committees on the grounds that the public interest was adequately safeguarded during town-planning hearings that were a prerequisite to a clean air licence.

"Public participation in setting licence conditions is most unwise in view of the specialist and highly technical nature of the issues involved, and is rightly the prerogative of trained staff," Mr Gair said.

NATIONAL PARTY POLICY ON PROTECTING ENVIRONMENT RELEASED

Auckland THE NEW ZEALAND HERALD in English 5 Nov 81 p 24

[Text] Economic development went hand-in-hand with the protection of New Zealand's natural heritage, the Minister for the Environment, Dr Shearer, said in the National Party's environmental policy which was released yesterday.

The party was committed to protecting the environment as much for the present as for future generations, he said.

A National government would continue to preserve areas which contained unique ecological systems, scenery of distinctive quality or natural features which were beautiful, unique or scientifically important.

Greater public and local body participation was being encouraged through amendments which had been made to the Mining Act.

"The amendments remove the prospector's automatic right to a mining license; require that public notice be given of applications, and provide for hearings before a planning tribunal," said Dr Shearer.

Urban Renewal

Because most New Zealanders lived in the cities, it was important to protect the urban environment.

"Under National, extensive urban-renewal programmes have been undertaken. Redevelopment programmes ensure optimum land use while rehabilitation programmes ensure the best utilization of existing housing stock.

"Conservation programmes will ensure the preservation of buildings for their architectural, historical or aesthetic qualities," said Dr Shearer.

In the past four years, the volume of timber taken from native forests had reduced by more than half.

Native Timbers

"Management policies are directed towards a further 80 percent reduction over the next decade. National's long term policy is to reduce the milling of native forest to the point where our native timbers are being used only for specialist functions," he said.

The Government had launched a campaign to protect New Zealand's rare and endangered wildlife species. Logging in South Okarito had been halted to protect the South Island brown kiwi, and a moratorium had been imposed on logging in the Pureora and Puketū state forests to protect the kokako.

#### Wildlife Research

Legal protection had been provided for a number of land and freshwater animals and an enforcement unit had been established to provide protection against poachers who sought to exploit protected wildlife for economic gain.

A committee to coordinate wildlife research had also been set up. Two marine reserves had been established.

CSO: 5000/9052



## RESTRICTION OF ENVIRONMENT COMMISSION ROLE UNDER STUDY

Auckland THE NEW ZEALAND HERALD in English 7 Nov 81 p 1

[Text]

**Government** fears that the Commission for the Environment is damaging prospects for investment in major industrial development have prompted further advice from officials on how to restrict the commission's watchdog role.

A set of proposals put forward by the departmental advisers to the powerful cabinet economic committee is the latest of a series of recommendations on the commission's activities dating back to last year.

A report to the cabinet committee in December advocated, among other things, that the commission should not longer consider the human or social consequences in vetting development proposals.

A debate ensued which included claims by the MP for Hamilton West, Mr Michael Minogue, that moves were afoot to slash the independent powers of the commission. The debate reached its peak when the commission's role was modified by an amendment to the National Development Act passed by Parliament at the end of this year's session.

### Discouraged

And, in spite of protestations by the Government

that there has been no intention to alter the essential principles by which the commission acted, the latest officials' report makes it clear that the role of the independent agency is still in the melting pot.

The report was requested on the basis of cabinet concern that the commission fosters "an unbalanced perception of the costs and benefits attendant upon the environmental standards required for projects and, hence, damages New Zealand's investment climate and its prospects for economic progress."

The statement has been interpreted as indicating fears that prospective developers would be discouraged by the zeal of the commission's researchers and the scope of their investigative brief.

The fears led to a recent inquiry by officials into whether the commission, in its auditing of environmental impact reports, should give information on alternative technologies or pollution control systems to those proposed by a developer.

### Most Suitable

The officials, it is reported, recommended that developers need not describe in their impact reports any alternative technologies to those which they had already chosen.

An alternative pollution control technique (which

may or may not be preferable to the one selected by the developer) would thus not be described in the impact report, for example.

And the commission would be unable to consider the merits of the options which had been available.

The officials recommended that alternative techniques should be described in an impact report in cases where the developer had not yet selected those considered by him to be most suitable.

But they also advised that the commission, although able to comment on the various options, should not be allowed to make its own judgment as to which one was preferable overall.

The officials agreed that the Environmental Protection and Enhancement Procedures, setting the ground rules for assessing environmental impacts, would be revised in the light of their findings.

### Only Barrier

The revision will also take into account a cabinet decision that environmental audits will be confined to vetting the statements made in an impact report, including, if any, those on technological options.

Ironically, the officials found that the only barrier to implementing their advice was presented by the National Development Act — the target of vigorous and continuing criticism by con-



servationists. w. 0. 0.

Under the act the commission is said to be independent and free of Government direction.

For projects to which the act had been applied, the officials' recommendations, if adopted, could therefore constitute only advice to the commission.

It is understood the advice could be enforced in cases where the act had not been invoked, however, and that there would be considerable pressure on the commission to accept it in all circumstances.

CSO: 5000/9052

NATIONAL PARTY ANNOUNCES POLICY ON PRESERVING FORESTS

Wellington EVENING POST in English 24 Oct 81 p 17

[Text]

Native forests as reserves or managed stands with more additions to exotic forests, that is National's forestry policy for the coming elections.

The policy was released by the Minister of Lands, Mr Venn Young.

More trees have been planted in the last five years under National than in any other similar period in the country's history, said the statement.

Ninety percent of new plantings are radiata pine, the most versatile of all wood-producing species.

Direct employment generated through forestry is at the rate of one job per 20 hectares of production for-

est, says the statement.

"Growing trees is only one rural land use option, and must be successfully integrated with farming. National will continue to encourage farm forestry as a means of ensuring optimum land use.

"Ninety percent of our forests are native, and their future is more in conservation and recreation than timber production," said the statement.

"Since 1975 National has reduced the logging of native forests by half. Management policies are directed towards a further 80 percent reduction over the next decade.

"Our aim is to preserve our native forests and to

ensure that their beauty and wildlife are not threatened."

The planting of special-purpose species is increasingly meeting the demand for high-quality timbers, said the statement.

But, says the policy statement, there will always be a demand for a small volume of native timber.

National will also encourage greater public involvement in forestry planning at a regional level by developing further the procedures available under the Town and Country Planning Act.

Public participation has already been increased by National by the introduction of the Forestry Amendment Act 1978.

CSO: 5000/9051

## CONSERVATIONISTS SEE LAND SCHEME THREATENING FORESTS

Auckland THE NEW ZEALAND HERALD in English 5 Nov 81 p 8

[Text]

Wellington

**Conservationists are concerned that a new Government land development scheme will endanger native forests.**

The scheme, announced by the Minister in Charge of the Rural Bank, Mr MacIntyre, designates several areas as rural resource development zones where preferential assistance with farm development finance will be available.

The president of the Native Forests Action Council, Miss Gwenny Davis said in a statement yesterday that the four designated regions included the major remaining areas of potentially exploitable native forest in New Zealand — Northland, the East Cape region, the King Country and the West Coast of the South Island.

Over the past four years cheap finance from the

Rural Bank had been responsible for clearing 19,000 hectares of native forest, according to a report from the bank itself, Miss Davis said.

"In the North Island the total area approved for clearance up to last September represents almost 10 per cent of the remaining potentially exploitable native forest in private ownership," she said.

"All such forest will be gone in a little over 20 years, if the present rate of land clearance is allowed to continue."

Until now Mr MacIntyre had insisted that the Rural Bank, in spite of being a

Government agency, had no responsibility to consider the environment when handing out money to farmers, Miss Davis said.

She challenged Mr MacIntyre to clarify whether it was his intention that the bank should subsidise the destruction of native forest under the new scheme.

Miss Davis said she had no particular objection to farmers getting taxpayer hand-outs for development purposes, so long as the money was not being used to subsidise the destruction of native forests.

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## ENVIRONMENTAL PROTECTION PROBLEMS, SHORTCOMINGS DISCUSSED

Warsaw PROBLEMY in Polish No 10, Oct 81 pp 8-12

[Article by Dr Mieczyslaw Gorczyca: "Some Thoughts on the Law"]

[Text] The legal problems relating to the protection and development of the environment and the efficient utilization of its resources require that the legal standards be codified. This requirement had not been fulfilled until 1980. However, on January 31, 1980 the Polish People's Republic Sejm passed an environmental protection and development law. This law, together with several mandatory and optional executive regulations, formed an internally consistent and uniform system codifying the legal standards on environmental protection. Thus we have a good legal system, but what next?

The most important provision in the law, which is a detailed interpretation of article 12 of the Constitution of the Polish People's Republic, is the assertion that "the Polish People's Republic assures the protection and efficient development of the environment which is a national asset and creates conditions favorable for the implementation of the rights of the citizens to take complete advantage of the qualities of the environment".

The provisions of the law on environmental protection and development went into effect on September 30, 1980. Of particular importance was the provision for the formation of a State Inspectorate for Environmental Protection under the Ministry of Administration, Local Economy and Environmental Protection, headed by the Main Inspector of Environmental Protection. In addition, a State Council on Environmental Protection was formed, which is an advisory and consulting organ of the Council of Ministers.

The law gives special protection to the natural resources of the environment, which in satisfying socioeconomic needs "can be used only as provided for in the national socioeconomic plans and plans on territorial development and in environmental protection regulations" (article 4). Environmental protection is an important element in that state's socioeconomic policy and its needs are an integral part of planned socioeconomic tasks. Of the general principles on environmental protection and development, the statement (article 7, point 2) that an administrative decision that conflicts with environmental protection requirements is invalid, deserves attention. Here we should express some misgivings on whether such a conflict will always be punished as the law provides.

In the pragmatic sense, the most important provisions of the law are those grouped in section 3 (Execution of Environmental Protection, articles 64-73) which contain the duties of organizational units and individuals in this field, restrictions on utilization of environmental resources, and the standards applicable to machinery and other technical equipment. The provisions require that organizational units and individuals which conduct or intend to conduct economic activity which may be harmful to the environment, must apply measures to ensure that the environment will be protected (article 64). This applies also to persons using the environment for purposes of travel or recreation.

All participants of the investment process are obliged to comply with regulations on environmental protection. No "newly built or modernized construction facility or group of facilities can be released for use if the environmental protection equipment required by regulations or within the framework of the involved investment has not been provided" (article 68). Machines, raw materials, and domestically produced and imported fuels should comply with environmental protection requirements.

Damage done to the environment by noncompliance with the strictly formulated requirements will be cause for punishment. Persons guilty of violations may be arrested, jailed, fined or reprimanded. Depending on the degree of guilt and the effects of the violations of environmental cleanliness (which may be a threat to human life or health, or cause serious economic damage), the culprit may be subject to imprisonment of up to 8 years.

#### The Law is Not Enough

A reading of articles on environmental protection and development, which were followed by executive regulations, gives pause for much thought. Without a doubt we should rejoice that a legal act of such importance should appear in our country, an act, which if its provisions are complied with, will be a powerful instrument of environmental policy. On the other hand, the functioning of the environmental protection system in our country (and not just that alone) points to the fact that even the best legislated regulations will not be the proper remedy.

What comes down to is that enterprises in the environmental protection and development field must be given an appropriate standing and the appropriate means for this purpose out of the meager funds. Our engrossment with economic growth that can be calculated in zlotys and other advantages has meant that outlays for environmental infrastructure have, and will continue to be, treated quite cavalierly. The situation is even worse now because today during the period of "lean" years in our economy, outlays for environmental protection will be almost nil.

The solution to environmental problems, therefore, must be sought primarily in the formation of an effectively operating system of economic incentives, which would encourage, or actually compel potential violators of the environment to avoid the violations and eliminate the harm. Economic measures in the form of payments for thrifty utilization of the environment or making changes in it may help in solving this problem. These payments will be collected for special use of water, polluting the air, removing trees, using arable or forest lands for other purposes, and for storing waste materials.



Unfortunately, environmental protection requires large sums of money. Therefore, an Environmental Protection Fund is being formed for investments, to support social activities (such as afforestation), and for management of waste materials.

Some great and very exaggerated hopes were linked with the Wisla [River] program. A priority program, of greater political importance than other economic goals that were in competition with environmental protection (the housing construction industry, and the fuel-energy and food complexes) it was to make use of the housing construction potential made available by restricting industrial investments.

Without ignoring the weight of the legal regulations contained in the environmental protection and development law, we have some doubts as to whether all of its provisions will be observed. Will it be possible to categorically observe the law's order "not to release for use facilities (or groups of facilities) if the required environmental protection equipment has not been provided"? Personally, I doubt that facilities scheduled to open will have their ribbon-cutting ceremonies delayed for lack of such an incidental--in the opinion of many decisionmakers--matter as environmental protection equipment.

#### Environmental Fact-Finding

Socioeconomic development, growth of tourist traffic, general chemical development of the national economy--all of these are responsible for the increased threat to our country's environment. Each year Poland suffers enormous, though difficult to precisely establish, losses as a result of this.

Water management. Poland is one of the poorest countries in Europe from the standpoint of water discharge. During the last 30 years it amounted to 1.6-2.6 thousand cubic meters per year per capita. Of over 14 billion cubic meters of water consumed in 1979, 70.6 percent was used by the national economy for industry, 11.5 percent for agriculture, and 17.3 percent for the municipal economy. Water consumption in the national economy increased over 40 percent in the 1970's. About 85 percent of the consumed water was obtained from surface water intakes and 13 percent was sub-surface water and 2 percent was mine waters.

The growth in demand for water caused an increase in sewage discharge. Combined with the cooling and polluted mine waters, 11.7 billion cubic meters of sewage was discharged into the surface waters in 1979, of which about 80 percent was cooling waters. In 1979 2.2 billion cubic meters of sewage was discharged by the urban sewerage system, which, in comparison with 1970, was a volume increase of 57 percent. Of 803 towns, only 350 made use of 424 sewage treatment plants, some of which also service the village areas. Of the total amount of sewage requiring treatment (4,660 million cubic meters), over 2,450 million cubic meters were industrial waste waters and the rest was the already mentioned municipal sewage discharged by the municipal sewerage system.

Without reducing pollutants (untreated sewage) about 2 billion cubic meters of untreated sewage (43 percent) was discharged in 1979, of which 32 percent was industrial waste water and 55 percent was municipal sewage. The sewage treatment plants do not have the equipment to reduce the pollutants adequately. The treatment plants are not able to neutralize the wastes that they receive. Only about one-third of



the treatment plants received sewage in amounts which did not exceed their flow capacity, and in almost half the municipal treatment plants the hydraulic load exceeded their treatment capacity by at least one-half.

Most of the treatment plants do not obtain satisfactory results in eliminating pollutants. This is mainly due to the fact that of 424 facilities which treat sewage from 350 towns, 155 of them have only mechanical treatment equipment. Therefore, not only is sewage from 453 towns which do not have sewage treatment plants discharged, but so-called "treated" consumed water constitutes a serious danger to the quality of subsurface water and to biological life. Of the over 4.7 billion cubic meters of sewage discharged into surface waters in 1979, it was determined that over 60 percent of the neutralization of pollutants as a result of the treatment processes was obtained in scarcely 30 percent of the volume of consumed water, of which 34 percent was in industrial wastes and 24 percent in municipal sewage.<sup>1</sup>

In comparison with 1973 in which of 7.3 billion cubic meters of discharged sewage (including 63 percent cooling water) about 2.2 billion cubic meters was sewage requiring treatment, its volume doubled. This was not accompanied, unfortunately, by an corresponding increase in the degree of its neutralization. This is shown by the drop in the share of treated sewage discharged into surface waters, which went from 70 percent in 1973 to not quite 40 percent in 1979. Not without significance in the change for the worse in these ratios is the positive, as a whole, improved quality control in discharged and treated sewage.

The growth in the amount of discharged pollutants had its effect on the cleanness of rivers and other water areas. The degree of change in river cleanness during 1967 to 1977 is shown in Table 1 (in percentage of length of inspected rivers).

Table 1

(1) Klasy czystości	(2) Okres kampanij				(3) Okres pozakampanijowy			
	1967	1970	1973	1977	1967	1970	1973	1977
I	31,6	24,8	23,4	10,1	33,0	24,9	23,6	10,1
II	25,6	29,2	32,2	32,6	28,7	32,2	33,8	33,3
III	14,0	17,7	18,0	25,6	15,5	19,5	13,2	27,0
wody nadmiernie zanieczyszczone (4)	28,8	28,4	26,4	31,7	22,8	23,4	24,9	29,6

Key:

- |                       |                             |
|-----------------------|-----------------------------|
| 1. Grade of cleanness | 3. Non-campaign period      |
| 2. Campaign period    | 4. Extremely polluted water |

This shows a very sad picture of the degradation of our rivers during 1967-1977, a period during which the share of our cleanest sewage decreased three-fold.

Water pollution is a threat to the country's economic development and has an adverse effect on the population's living standard and its health. The steady growth in

<sup>1</sup> See "Environmental Protection and Water Management, 1979", Warsaw, 1980, Government Statistical Office, from which most of the statistical data in this article was taken.

the demand for water by the national economy (by more than half in the 1970's) increased the discharge of consumed water, of which about 50 percent was untreated sewage. Since almost two-thirds of the sewage was treated only mechanically, it is small wonder that the results of nonbiological treatment were unsatisfactory.

A slow-down in consumption and a drop in discharge of pollutants can be stimulated, as examples from other countries show, by instruments of economic influence. This has been made possible by the 1974 law on water, which required that since 1976 payments must be made for water that is consumed for industrial purposes. The Water Management Fund is comprised from these payments. However, the already mentioned lack of building reconstruction capacity has meant that most of the money in this fund could not be properly utilized.

In recent years the financial outlays for investments in the field of water economy and water protection were alarmingly decreased. For example, they dropped from 18.3 billion zlotys in 1978 to 16.8 billion zlotys (in current prices) in 1979. There is a real danger that in a general economic recession it is precisely the investments in the field of environmental protection that will be most sharply restricted. From one year to the next, the funds from the Water Management Fund are not being utilized. In 1979, for example, only slightly under 57 percent of the available funds were used.

Air pollution control. Most of the atmospheric pollution in our country is caused by the industrial plants (about two-thirds). The assumptions of the environmental protection program in Poland to 1990 establish "absolute" requirements for installation of protection equipment in facilities released for use. However, lack of performance capacity, unsuitable fuel quality, the necessity for power shutoffs, which, unfortunately, apply first to protection equipment, are responsible for the fact that the results of air pollution reduction are unsatisfactory.

Industrial and heating plants which are especially harmful to atmospheric cleanliness, totaling 931 in number, during the 1970's emitted an average of 2.2-2.4 million tons per year of polluting dust. This amount did not fluctuate very much in the subsequent years. Yet the amount of emitted gas pollutants increased steadily. Although in 1973 the amount was 2.5 million tons, in 1975 it exceeded 3 million tons and in 1979 it came close to 5 million tons. The amount of pollutants trapped in reduction equipment, which in 1973 amounted to 21.8 million tons of dust and 0.7 million tons of gas pollutants, increased to 25.7 and 0.7 [as published] million tons, respectively. In 1979 the amount of trapped dust pollutants dropped (by 0.1 million tons) and the amount of gas pollutants dropped by 0.03 million tons, which was probably caused by shutting off the equipment for lack of power. In this way the degree of neutralization of dust pollutants increased from 91.4 percent in 1978 to 91.5 percent in 1979, and in relation to gas pollutants this index dropped from 13.5 to 12.2 percent of trapped emissions.

Reductions in allotments of investment funds for environmental-technical infrastructure affected air pollution control most strongly. While 2,834 million zlotys was expended for it in 1977, in 1978 the figure was 1,941 million zlotys, and in 1979 only 1,402 million zlotys. After inflationary trends in construction are taken into account, the dangerous drop in outlays will appear even more drastic.

Solid waste management. As of the end of 1979, the storage yards, dumps and cess-pools contained over 846 million tons of solid wastes from the operations of industry, and in that year almost 24 million tons were added. In 1979, 165 million tons of wastes were discharged, 94 million tons of which were used for purposes of the economy. The surface area of the dumps, storage yards, dumping grounds and sedimentation ponds, on which the solid wastes are collected, occupied 8,429 hectares, and in that year 214 hectares were reclaimed. Most of the accumulated solid wastes come from the operations of ministerial units: metallurgy (38.1 percent), mining (29.1 percent), construction and the constructions materials industry (13.3 percent).

Particularly troublesome, despite the lower volume, are the municipal wastes. At the end of 1979 there were 34.8 million cubic meters of these wastes on 1,225 public and permanent dumping grounds. These dumping grounds covered 2,267 hectares of land. Scarcely 1 percent of the total amount of the wastes was recovered by composting. Almost 40 percent of the municipal dumping grounds are in poor sanitary condition and, according to the State Sanitary Inspectorate, are a threat to the health of the community.

The threat and protection of the land surface and the soil. Of 31,268.3 thous. hectares surface area in our country, 61.3 percent is cropland, 28 percent is forests and woods, 2.6 percent is under water, 0.1 percent is mining land, 3 percent is transportation areas, 2.6 percent is community areas, and 2.4 percent is wasteland and remaining lands.

We see a steady decrease in Poland of cropland acreage. In comparison with 1946, about 1.3 million hectares have been turned over for nonagricultural purposes. Therefore, acreage per person has dropped from 0.85 hectares in 1946 to about 0.5 hectares now. To reduce this unavoidable phenomenon, a system of payments has been introduced for withdrawing land from agricultural and forestry use. Unfortunately, in the 6 years since the law on protecting and reclaiming land (1971) went into effect, it had not been possible to lessen the transfer of lands for nonagricultural and nonforestry purposes. For this reason, among others, charges were tripled starting in 1978, which caused, for example, a drop in surface lands withdrawn for nonagricultural and nonforestry purposes from 27,000 hectares in 1977 to 17,200 hectares in 1979 to occur. Most of these lands are low-quality soils and forest sites, which the highly differentiated level of payments (from 1.6 million zlotys down to 0 zlotys per 1 hectare--in the case of takeover of wasteland) favors.

The acreage of lands requiring reclamation (over 108,000 hectares in 1979), and the low level of their reclamation and development (28,600 and 24,800 hectares in 1979), is disturbing. Furthermore, the money from the fund for soil reclamation, which amounts to billions of zlotys, is not being used sufficiently. For example, in 1979, out of almost 4 billion zlotys of payments from procurement of agricultural and forest lands for nonagricultural and nonforest purposes, not quite 2.9 billion zlotys was paid out of the Land Protection and Reclamation Fund.

The threat to the forests. Industrialization of a country inevitably brings direct and indirect harm to a forest environment. The increase in Poland's forests by over 5 percent during 1974-1978, to a 27.5 percent level, is an obvious success. But this level is lower than the world average (by 1 percent) and the average in Europe (by 4 percent). Furthermore, our tree stands are relatively young and typically deformed. They are also unevenly distributed.

The country's forests, which in 1960 constituted 24.6 percent of its surface, increased to 27 percent in 1970 and 27.5 percent in 1979. This was due to the renewal and afforestation, which in the last several years amounted to an average 100,000 hectares each year. Despite the increase in the country's forest areas, we observe a worsening in the age structure of the tree stands. This is shown in Table 2.

Table 2.

(1) Data	(2) Kłasy wieku (w latach)							(3) Działalność o różnej strukturze wiekowej
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	
1977	4.1 <sup>2</sup>	13.1	27.9	26.3	18.6	6.5	3.5	0.2
1979	4.1 <sup>2</sup>	13.1	27.9	26.3	18.6	6.5	3.5	0.2

Key:

1. Years
2. Age group (in years)
3. Tree stands of different age structure

Over 81 percent of the forest reserves are coniferous trees, dominated by pines (mainly the Scotch pine), which cover over 70 percent of the surface. Timber reserves now are (in large timber, gross) over 1 billion cubic meters and they increase each year by about 1 million cubic meters. Of this amount, in 1977 they comprised the following individual age groups, shown above, by percentage, respectively: 4.1<sup>2</sup>, 13.1, 27.9, 26.3, 18.6, 6.5 and 3.5. The pine comprises 65 percent of the large timber reserves, and the coniferous timber is 67 percent of its combined standing reserves. Of the deciduous trees the beech predominates, covering 4 percent of the afforested area and 6 percent of the large timber resources. Harmful emissions of various pollutants into the air atmosphere are a threat to almost 400,000 hectares of forests, whose tree stands are exposed to weak damage (64.4 percent), average (29.1 percent) and heavy damage (6.5 percent). In comparison with 1971, the surface area of the threatened forests has increased by almost two-thirds. The forests are also subject to degradation due to "mining damage". In 1979 almost 30,000 hectares of forest land was subjected to this damage, mainly due to drainage of forest lands (25,600 hectares) caused by mining operations.

Each year billions of zlotys flow into the Forest Fund from surcharges on timber and damage caused by: forest fires, mining damage and withdrawal of land for nonforest purposes. In 1979 revenues amounted to 6,050 million zlotys. This year 5,329 million zlotys were used which was an exception to the practice of recent years when the use of funds from the Forest Fund was much greater than were the revenues.

Aside from timber production and environmental and protection functions, other

<sup>2</sup> Together with tree stands for cutting, among which trees up to 20 years dominate, however.



economic activity is conducted in the forests--growing and hunting. Fruits, berries, forest herbs, wood resins, wild mushrooms, and tanbark are gathered and Christmas trees are grown. Wild game hunting produces considerable revenues, including foreign exchange. For example, in 1960, 1970 and 1979, animal kills amounted to (in thousands), respectively: deer, 9, 10.5 and 16.6; does, 19.6, 18.6 and 31.5; boars, 22.8, 24.4 and 82.4; hares, 390.6, 385.5 and 166.7. The maximum number of game animals shot was as follows (in thousands per year): deer, 16.6, in 1973; does, 67.2, in 1978; boars, 82.4, in 1979; hares, 563.3, in 1975; pheasants, 244.8, in 1975; and partridges, 869 in 1976.

In 1979 there were 13 national parks in our country, a number that has remained unchanged since 1975. They occupied a surface area of almost 117,000 hectares. i.e., about 0.4 percent of the geographic surface. In addition, 735 preserves (scenic, animal, forest, peat, plant and flower, water, steppe, halophyte and inanimate nature) covered 72,500 hectares. There were 10,805 so-called monuments of nature, protected by law, on Polish land, i.e., over 6,000 more than in 1960.

In the last 20 years on the whole there was a large increase in the populations of the more important protected animals. Beavers, estimated at about 1,250 in 1979 (as against 217 in 1960) increased the most, as did our preserve specialty--bison, which now number 545 against a former 145. The number of chamois stayed at about the same level (150-200), but the bear population dropped alarmingly, to an almost relict number of about 20.

#### Social Movement for Environmental Protection

Not only the organs of state and economic administration involve themselves in environmental protection matters, they are also an object of interest and activity of many political and social organizations. The largest mass organization is the National Unity Front (FJN) which has been in existence since 1952. The FJN initiates various environmental protection actions. The campaign, initiated by the FJN in 1975, called "100 million trees and 60 million shrubs for the millenium of the Polish State," was well-known and fruitful. A Commission for Afforestation and Environmental Protection functions within the FJN. Under the auspices of the FJN, campaigns for afforestation and land reclamation mobilize the populations of the towns and villages to activities in behalf of environmental protection. The Independent Self-Governing Trade Unions "Solidarity" play a large role in environmental protection.

Many associations, such as the Sightseeing Tours Society and the League for the Preservation of Nature [LOP] (numbering almost 1.5 million members associated in over 13,000 circles), also involve themselves with environmental protection matters. In 1979, LOP members planted almost 8 million trees and shrubs, set out almost 1.7 million tons of food for animals and cared for thousands of hectares of green and afforested lands. As part of its operations, almost 14,000 lectures and 44,000 nature talks were given in the LOP.

The Polish Anglers' Union [PZW] has over 700,000 members. The Nature Preserving Guard [SOP] has 1,400 regional groups and 28,000 members and is a social army for environmental protection. It is assisted in its prevention-suppression activities by the Water Protection Fishermens Guard, which issued 36,000 citations in 1979.

The enormous number of different types of organizations makes it possible to better protect the environment against vandals, poachers or people who do not have an awareness of the environment.

In generally describing the activities of social organizations in the field of environmental protection, the following types of problems should be distinguished:

--the conducting of awareness and popularization programs among their members for persons on the outside;

--the shaping of public opinion;

--the initiation of activities and actions for the good of the environment;

--the undertaking of measures to protect the environment (messages to the authorities);

--the coming out against acts of devastation of the environment; and

--the giving of active assistance to administrative and police organs in cases of transgressions doing harm to the environment.

The fact that environmental protection is somewhat by definition the goal of our political system, does not really settle the matter. Nor is it settled by incorporating this obligation into the Constitution, or into those commitments which promote this goal and which evolve from the most specific standardization acts.

Every country--Poland also--can defer an increase in the not-so-trivial, of course, outlays for environmental protection, in favor of an increase in economic growth which is expressed in an increase in the production of assets per capita. The only effect of such a deferral will be the deterioration of the quality of the environment, whose recovery in the future (if this is at all possible) will cost that much more. The prevention of environmental pollution (degradation) and the rehabilitation of the environment to restore biological balance, is technically possible, socially necessary, ecologically irrevocable, and economically profitable, although we are not yet able to precisely measure this profitability. Nevertheless, the problem of environmental protection and development must be given its proper rank. Life in a healthy and natural environment, which is pleasing to the eye and the ear, is a sine qua non condition for the proper understanding of the quality of life, something that, unfortunately, we too frequently forget under conditions of day in and day out shortages.

9295

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ENVIRONMENTAL PROBLEMS--PLAN VI DEFICIENCIES OUTLINED

Caracas RESUMEN in Spanish 25 Oct 81 p 25

[Article by Fernando Travieso: \* "Decentralization: the Great Alternative," Article No 14, "Plan VI and the Environment."\*\*]

[Text] The Sixth National Plan, 1981-1985, makes no provision for effective decentralization or control measures that could redirect current trends of land occupation, and thus encourages repetition of existing patterns of land use and environmental degradation.

Environmental deterioration processes will intensify around Caracas, exerting influence directly on the Valles del Tuy and indirectly on Barlovento and the rest of the capital city area. This would lead to pollution of the atmosphere as well as of bodies of water, degradation of vegetation, increased risk of seismic and other geological disturbances in the various urban settlements, destruction of drainage basins, elimination of the buffer zone's ecological usefulness, and the occurrence of periodic floods in urban areas.

Given the magnitude of these impacts on the country's central region, and depending on the efficiency with which we apply macro-policies designed to mitigate such impacts and regulate patterns of land occupation (as for example in the Outline of Regulations for the North-Central Coastal Region, the Outline of Regulations for Caracas's Buffer Zone, and the Valles del Tuy Development Plan), we can expect to see a greater or lesser destabilization of environmental systems with regard to their ecological, hydrological and morphogenetic balances, with very immediate consequences for the inhabitants' health and quality of life.

Plan VI implies no substantial productivity changes in the different environmental components. That is, no provision is made to reverse present negative tendencies of devaluation, underutilization and mismanagement of environmental resources, or to change conditions now prevailing in the central region and the country at large.

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\*Director of the study: "Alternatives for the City of Caracas in the year 2000."

\*\*This article is based on the study "Alternatives for the City of Caracas in the Year 2000, Chapter IV: Environmental Model, CENDES, [Centro de Estudios del Desarrollo], UCV [Universidad Central de Venezuela], 1980;" and on the "Sixth National Plan, 1981-1985, Volume III: Regional Development."

Dedication of land and other agroecological factors to agricultural uses is drastically reduced, while land for urban development is indiscriminately increased in priority development areas. Many such areas, however, represent serious physical obstacles to urbanization (See Article 12: "The New Metropolises.")

Plan VI fails to attack the problem of water supply for the central region and the capital city area. It calls for continuing drainage of neighboring areas' water resources, and increases the need to preserve high-altitude watersheds and carry out costly transport systems (Orinoco, Guanare, etc.), with currently unforeseeable socioeconomic and ecological consequences.

In priority development areas where, according to Plan VI policy, it is feasible to increase urban and industrial growth substantially (Ciudad Guayana, Ciudad Bolívar, Maracaibo, Costa Oriental del Lago, Barquisimeto, Acarigua, Araure), future developments will accentuate problems of environment and use of natural resources in the priority areas' spheres of influence. In the remaining priority growth areas (San Cristóbal, San Antonio, La Fria, Barcelona, Puerto La Cruz, Cumana), current tendencies toward deterioration and poor resource utilization can be expected to continue.

Since Plan VI does little to slow the expansion of industrial plant and equipment and growth of cities in the Lago de Valencia basin, and in spite of the existence of the Master Regulatory Plan, serious losses of environmental resiliency are sure to occur. These will include irreversible degradation of the Lago de Valencia and its entire related water system, removal of optimal quality soils from agricultural use, including irrigated land, and the spread of atmospheric pollution problems throughout the basin. Problems of water supply for urban uses in the country's central region will be similar to the capital city's problems.

A series of mutually intensifying effects will take place in the capital city area and the country's center, thus maximizing the total regional impact. Chaotic urbanization in the expansion zones for Caracas, Los Teques, Valles del Tuy, Guarenas, Guatire and Barlovento will affect interrelated environmental systems in the neighboring Valle de Caracas as a result of what we may call the dynamics of the capital area.

Increased density in Los Teques and La Panamericana will affect the morphogenetic and waterflow dynamics of the slope in the area where it makes contact with the Valle de Caracas. This will add to its flooding and landslide problems with new and more intense processes of environmental degradation.

Similar repercussions will affect the Valles del Tuy, completely incapacitating certain areas for urban development. Transformation of Caracas's buffer zone into an intensive recreational area for high-income groups will have similar, though somewhat less serious effects on the Valle de Caracas and the Valles del Tuy, given their place in the regional context. Urbanization of Guarenas-Guatire will be accompanied by increases in atmospheric pollution not only "in situ," but also in the Valle de Caracas itself, due to wind dynamics. Serious problems will occur with respect to the dynamics of the River Tuy, Barlovento and the metropolitan coastline due to the production, transmission and impact of water pollution, compounded by the effects of flooding.

The solution: decentralization and popular control of environmental policies.

9839

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## WATER SHORTAGE EFFECT ON ECONOMIC DEVELOPMENT OUTLINED

Algeria Al-SHA'B in Arabic 13 Oct 81 p 3

[Article by Jamal Salihi: "The Problem of Agricultural Irrigation in Eastern Algeria; Competition Between the Industrial Sector and Household Consumption"]

[Text] The water shortage problem has become one of the stumbling blocks on the road to development and improvement of the standard of living of the citizens. The problem remains unsolved with regard to both drinking water and water allocated for agricultural irrigation and industrial plant consumption.

The lack of water in our country is not due to a lack of rainfall or insufficient supplies of ground water. It is due primarily to the failure to achieve rational use of rainwater including storage of sufficient quantities of water behind dams, the exploitation of groundwater through the drilling of wells, and the construction of pumping stations, not to mention the water lost by runoff into the ocean, evaporation, leakage through ground fissures, or waste from faucets.

This problem is most severe in the areas of the country where competition for this basic ingredient of life is fiercest among the following three uses: household consumption, consumption by the industrial sector, and irrigation in the agricultural sector.

Perhaps this situation applies most clearly to the eastern part of Algeria. A third of the country's population is concentrated in this area and industrial development is experiencing a strong boom there. Moreover, the area is a prime agricultural region.

This area receives a substantial share of the country's rainfall. The department of Annaba led the country in the number of rainfall days in 1979 with 122 days for a total of 881 mm of rain. This is more than all other departments in eastern Algeria combined. Perhaps this fact is what has placed Annaba in the forefront of the departments that are waging the battle of industrial development. Annaba possesses 48 economic units including 22 plants in the heavy industry sector.

In general, this area is experiencing a comparatively strong industrial boom. Industries centered in this region include numerous plants and installations of

the iron and steel industry (el-Hadjar, Annaba), the petrochemical and refining industries (Skikda), the mechanical implements and tractor industry (Constantine), the bicycle and motorcycle industry (Guelma), the plastics industries (Setif), and the textile industries (Batna), as well as building material plants and conversion industries. All of these industries require large quantities of water in the course of their processing operations. As an example of this, while the Algerian citizen uses an average of 75 liters of water per day—a figure that is below international standard of water consumption, which is 300 liters per day—the production of 1 kilogram of steel requires 270 liters and the production of 1 kilogram of rayon requires 1,000 liters. However, the high concentration of large industrial projects which have won priority in past development plans has had a far-reaching impact on the agricultural sector both from the standpoint of the industrial projects' encroachment on arable lands and from the standpoint of the diversion of irrigation water to operate industrial plants. This has created an imbalance between the two sectors and has complicated their growth, which was to have been balanced and integrated. This situation has been aggravated by the sprawl of construction into fertile lands without proper attention to development preparation.

The fact is that the water shortage problem has not been brought on by the industrial sector so much as by the sector responsible for the completion of the dams scheduled in the development plans as well as the small and medium-sized irrigation projects. These projects could have stored significant quantities of both rainwater and groundwater. While it was inevitable that industry should ask to obtain the lion's share of the water at the expense of agriculture and household consumption, it should have been obligatory before every industrial project was set down in past plans—and this should be a lesson for us in the planning of industrial projects in the future—that hydraulic studies be conducted to pinpoint the water resources required by the project without recourse to competition with agriculture or household consumption for the same resource. Of course, we are not speaking here of the precedence which the project should obtain.

The area that we are discussing is a suitable area for the construction of dams because of its undulating terrain and the quantities of rainfall it receives in the winter. However, this matter does not depend solely on the suitability of natural and climatic conditions or on planning and the allocation of financial resources. The insurmountable obstacle lies in the weakness of the means of implementation. The level at which the large dams are being completed is very low and does not conform to the prescribed goals—especially in view of the competition for building materials and means of transport this sector is experiencing with the construction sector.

For these reasons, the least we can do is to encourage small and medium-sized irrigation units such as small dams, artesian wells, and pumping stations. The key advantage of these units is that their installation and operation can be controlled at the local level without exorbitant costs, the use of high technologies, and with a considerable saving of time.



UNITED ARAB EMIRATES

BRIEFS

OIL SLICK--Ras Al Khaimah (EN)--An oil slick Saturday spread in the coastal waters between Khor Al Rams and Hilailah village in Ras Al Khaimah, threatening the area with pollution. The slick is three kilometres in length and 200 metres wide. According to Sheikh Nassir Ibrahim Al-Qassimi, president of the Fishery Society, it developed from the oil discharged by vessels anchored off the coast. Sheikh Nassir warned that the marine life in the area is in danger of extinction. He called for urgent measures to protect the coastal area from pollution which he said poses a threat to the country's economy. [Text]  
[Abu Dhabi EMIRATES NEWS in English 23 Nov 81 p 2]

CSO: 5000/4703



## DANGERS OF MOUNTING GARBAGE IN LUANDA STRESSED

## Situation Described

Luanda JORNAL DE ANGOLA in Portuguese 21 Oct 81 p 2

[Article by Joaquim Ramos]

[Text] Greater Luanda, a city with over 1 million inhabitants, is now in danger of contracting diseases caused by the lack of sanitation evident everywhere. Garbage littering the streets, the entrances to buildings, garages and dwellings, broken pipes, clogged drains is the spectacle we encountered as we cross the city from one end to the other.

But unfortunately, it is now a question of a situation which is already spreading beyond the Luanda limits into other regions of the country as well. How long will a situation such as this continue to exist? Clean-up drives and garbage collections should be carried out periodically in order to avoid the spread of such diseases as cholera and other epidemics, because one of the results of the indiscriminate accumulation of garbage is the rapid breeding of cockroaches, fleas, flies, mosquitoes and rats, all of which are potential disease carriers.

Until a short time ago, there were areas where rats were rare, but which are now making their destructive activity felt, creating not only repulsive but even very dangerous conditions, for rodents constitute potential carriers of a significant number of diseases. A single bite from one of its parasites, especially a flea, the rat could cause infections or food poisoning and spread transmissible diseases, such as Murine-typhoid fever and bubonic plague.

If we carefully study the rat's activity from an economic viewpoint, what becomes most evident is the widespread ruin of foodstuffs and at times the serious damage done to electrical installations and pipe lines.

But on coming to grips with the garbage problem, we cannot overlook the particularly serious situation existing in suburban neighborhoods where the predicament appears to be considerably more critical because of the total lack of social substructures and where, in addition, the majority of the urban population live. Garbage in these areas is much more dangerously piled up and would require a more diligent clean-up and sanitation job.

Some residents who understand the situation are very careful about emptying their garbage into containers which, on the city's initiation, are already becoming commonplace. Many do not take into consideration that by allowing garbage to pile up haphazardly near their residential areas, they are exposing themselves to disease and to other dangers. As long as it is not possible to replace the rundown areas by clean neighborhoods with the necessary substructures, the inhabitants should take the necessary precautions to combat diseases which could result from garbage. It is not uncommon to see small garbage dumps near suburban residential areas and even next to markets where people buy their food supplies, they have become quite common; we believe that urgent measures will soon have to be taken to counteract this. Garbage is synonymous with disease.

Now with the fast approaching rainy season, Luanda will suddenly find itself saddled with another problem: the formation of pools where polluted water and breeding places for mosquitoes are also becoming centers of infection which can seriously jeopardize public health, although this is a difficult problem to solve under present circumstances. But what is of the utmost importance is to face all these problems seriously, and try to solve them the best and quickest way possible.

#### Inoperative Treatment Plant

Luanda JORNAL DE ANGOLA in Portuguese 28 Oct 81 p 2

[Text] Last year on 5 December the JORNAL DE ANGOLA announced that the garbage treatment plant located in the Kilamba Klaxi Bairro, and industrial unit constructed in the colonial period and which never became operative, would soon begin to operate.

As it is the only one of its kind in the People's Republic of Angola it is easy to see the economic importance of this garbage treatment plant which will make it possible to convert garbage from Luanda into fertilizer for agriculture, in addition to processing the separation of several kinds of scrap iron which can be put to good use in other industries.

Meanwhile, 10 months have gone by. This unit continues inoperative and apparently without any prospects of becoming operative, while in the meantime its substructure has been progressively deteriorating and the several installations converted into public toilets.

The area's inhabitants, in turn, have begun to break windows and pull up electrical cables for the most varied purposes.

The impression one gets from a visit to this plant, in which millions of contos from the public treasury have been invested is chocking and calls for the Ministry of Industry's demand for immediate attention from those in charge.

To give the reader a clearer idea of garbage treatment plant's importance we must point out that it is a question of a highly complex plant and the only one of its kind in Africa. There, after the garbage is collected, it is deposited in three large receptacles where the different kinds of residue are separated. Paper and plastic go to one side, the scrap iron to the other, etc.

The various types of garbage are later compressed into blocks and sent to their respective industries. The iron blocks are intended for the national iron and steel industry, the paper blocks for industries in this line of business and the fertilizers are naturally delivered to the Ministry of Agriculture.

The importance of this garbage treatment plant in the prevention of pollution should also be stressed.

To grasp fully the present condition of this unit, we recently went to talk to the person in charge of the Provincial Commissioner's Office in Luanda. He told us that they had already taken steps to prevent any greater destruction to the Kilambo Klaxi garbage treatment plant's substructure. On the other hand, they have also made contacts with foreign companies in this line of business with the view to the most immediate possible salvaging of this production unit. A group of technicians has already been with us to assess the working conditions, but have returned without having solved the problem.

On this subject, it is conceivable that the Kilamba Klaxi Bairro Committee may be able to exert a positive influence on the inhabitants by making them comprehend the economic importance of the plant in question, and helping them to realize the importance of their safeguarding these structures which are so necessary to the country.

8870

CSO: 5000/5614

## BRIEFS

COAL SHORTAGE CAUSES DEFORESTATION--Sometime ago I intended to write to this newspaper to report a certain number of conditions which I believe should be aired in the press, but only today am I taking this initiative. Indeed, the subject I wish to focus upon seems to me sufficiently relevant since it pertains to practices which concern all the Angolan people. I was born in Luanda 32 years ago and have lived here ever since. I have always been accustomed to looking upon our wonderful city's forest island as a garden of paradise where many families spend Sundays having picnics in the shade. But it now happens that the renowned Luanda forest island is about to disappear because many people living in the above-mentioned neighborhood, because of the lack of coal, have decided to cut down those trees for firewood. I believe that this is the wrong course of action because it jeopardizes the biological balance and flouts the laws protecting nature. The forest regions render a beneficial service for all. The shade of the trees in the Luanda forest island have already afforded welcome shade to many families who go there to spend Sunday on the beach and also provide many hours of relaxation if the people living in that Luanda region do not continue to destroy the forest, tree by tree. [Text] [Luanda JORNAL DE ANGOLA in Portuguese 28 Oct 81 p 2] 8870

CSO: 5000/5614

# PRESIDENT REVEALS PLAN TO DEVELOP WATER RESOURCES

Gaborone DAILY NEWS in English 18 Nov 81 p 1

[Article by Johannes Pilane and David Matshediso]

**[Text]** THE PRESIDENT, Dr Q.K.J. Masire has said the Government plans to spend P44 million on water development throughout the country. He was addressing a kgotla meeting at Letlhakeng in the Kweneng West on Saturday.

He said that the water plan is contained in the 1979/85 National Development Plan and he expressed hope that it would improve the critical water situation in the country.

The President noted however, that as government keeps on developing the country, demands for more development prop up at a high rate. But he assured his audience that his government would do everything in its power to meet the demands.

He believed that such demands were inevitable in view of the increasing population. Botswana's population, according to recent census results, now stands at 936 600.

He said on top of that, some old boreholes were getting polluted and therefore abandoned. The abandoned ones also have to be replaced, hence there were extra funds involved.

In addition there are new villages mushrooming which also have to be supplied with water.

The President also called on the Kweneng Land Board and the Council to work jointly with the Bakwena, to speed up the

implementation of the Tribal Grazing Land Policy, since the delay meant waiting for hiking costs of the farming inputs.

He said the policy was taken to improve farming in the country and called for old methods to give way to new ones.

He noted that other nations had applauded Botswana for its policy and any unnecessary delays would not be favoured by government. He urged the bodies to resolve disputes over farms.

The President praised Letlhakeng residents for their resolution to build a Junior Secondary School and said that such a resolution was in line with recommendations by the Education Commission which was appointed some years ago.

Earlier, the Chief's Representative called on government to improve the Letlhakeng-Molepolole road and to establish a Veterinary Vaccine storage.

The Member of Parliament for the area Mr E.G. Reokwaeng also said his constituents were aware of government efforts in development and did appreciate such developments but asked

for more consultation by government officers.

Speaking at Manyana the President said money is the price of what has been done and without goods or services

rendered notes are not effectively worthwhile.

The President recalled what he told Moshupa people about the shaky diamond markets and said with such financial instability our economic level was bound to be affected unless our alternative methods were effective.

In Moshupa, the President said the alternative method to alleviate or fill the gap was that Botswana must divert to agriculture production.

He reiterated that the financial strength of any country depends on its productivity and called on Botswana to produce more goods to attract flexible foreign exchange.

He said banks were just granaries keeping monies for depositors but the actual usefulness of money itself was productivity.

Addressing himself to Manyana people, he said government was worried about the state of roads in the area and that traffic had grown. He however added that government had employed experts to advise on what was to be done and how.

He said that the traffic density reflect a total of 160 vehicles a day between Thamaga and



Moshupa Between Thamaga and Botlle 140 a day and of Mogoditshane, Gabane and Kumakwane 220 a day

Earlier the Chief Representative, Mr Marks Mosielele asked for increased powers of Chiefs in order to deal with the high rate of crime in the country

A Village Development Committee (VDC) member, Mr J. Kruger called on government to reduce the P300 private water installation fee.

He also requested for a police station to be established at Manyana.

He told the President that Manyana residents were not happy because of the poor relationship between their councillor and the Chief Representative. He also called on for Self-Help Housing Agency (SHHA) to be introduced in rural areas

Earlier on his arrival, Dr Masire was shown around the vegetable garden operated by the Kolobeng Cooperative Society. He commented that it was encouraging and applauded

Manyana VDC to have taken heed of government's encouragement for self-reliance

A former Councillor, Ezekiel Macha complained that telephonists in the telecommunications department often waste time discussing their private matters instead of attending to public calls.

In all his meetings, the President was accompanied by Mrs Masire, the Minister of Public Service and Information, Mr D. K. Kwelagobe and the Assistant Minister of Finance and Development Planning, Mr Lesedi Mothibamele.

CSO: 5000/5630

# PRESIDENT TO RECEIVE BRIEFING ON DROUGHT

Gaborone DAILY NEWS in English 5 Nov 81 p 1

[Text]

DELEGATES at BDP constituency congress held in Molepolole recently, have decided to send a four-man delegation to brief the President, Dr Quett Masire about what they referred to, in lengthy heated debates, as serious water situation.

The congress revealed that the village was hard hit by a serious shortage of water. At the Scottish

Livingstone hospital, delegates said, patients had to go into the bush because there was no water in toilets, and thus, increasing health hazards in the village. Major institutions like the Kgari Sechele Secondary School and the Kweneng Rural Development Association were also said to have been badly affected.

The congress appealed to government to re-equip old boreholes, which were closed down because the water was said to be polluted. Delegates argued that the water in the impounded boreholes was far much better than the "highly polluted water that villagers were forced to drink from the Mokgopeetsane and Tshwaanyane rivers."

It was further pointed out that it was wrong, in the first place, to have closed down the old boreholes before clean and adequate water could be made available.

The water situation, delegates strongly pointed out, had slowed

down self-help development activities. The congress expressed concern about the fact that the water problem was "a perennial one that the Ministry of Mineral Resources and Water Affairs is aware of. The leadership of the party in the constituency has from time to time drawn the attention of the Ministry to this problem, but to no avail," delegates said.

Many speakers also wondered why, since the Water Affairs department always claim there is plenty of underground water in the area. BCPA

CSO: 5000/5630

# INADEQUATE WATER SUPPLY IN TSWAPONG REPORTED

Gaborone DAILY NEWS in English 3 Nov 81 p 3

[Article by Monty Letshwiti]

[Text] INADEQUATE water supply continues to be the main problem facing villages in the Tswapong area

This was confirmed after a tour of Palapye and surrounding villages by the local Councillor, Mr Stanley Mabogo

Mr Mabogo took a three-day trip to Matlhakola, Lecheng and Goo-Sekgweng to collect first-hand information after which he told BOPA that the situation was not as bad as some people had reported.

The councillor said that the water-reticulation programme in the village was at impressive record because water stand-pipes were already available in the various wards to save people from walking long distances to fetch water.

The need for the water stand-pipes distribution in a given area is usually determined by the size of the village, as well as council and government offices.

Government planners have always requested people to group together to form big settlements, so that a systematic distribution of National Development Projects could be implemented throughout the country.

At present, National Development Projects appear not to be running at the planned pace because of the scattered settlements in the country. This

is compounded by transport problems and public unwillingness to leave their old villages and traditional lands.

Mr Mabogo appealed to all local authorities in the villages which have water development projects completed, to apply sanitary measures in order to avoid unnecessary transmissions and spread of infectious diseases. Medical facilities and transport

to the nearest hospitals were very limited in the rural areas.

The councillor also cautioned villagers to look after boreholes and the pipes to avoid unnecessary council expenditures which could delay further development.

He warned that the work volume in the Council water maintenance units has also gone up and as such it took a long time for broken boreholes to be repaired.

Mr Mabogo noted that there was not enough underground water in the Tswapong area. He expressed concern that people and their livestock in the area sometimes went for many days without water because of borehole breakdowns.

This observation was indirectly supported last week by the (BPC) Chief Executive Officer, Mr Edward Bell when briefing Central District local authorities on preparations to build the national power plant in Palapye.

He said that water would be piped from Paje north of Serowe to be used in plant operations and for staff consumption. BOPA

## BRIEFS

**BAKWENA WATER CRISIS**--The President, Dr Q. K. J. Masire has assured Bakwena that the government would do its best to ease the problem of water shortage in Molepolole. A delegation had been sent to meet the President at Letlhakeng West to brief him about the water shortage in Molepolole. The delegation told Dr Masire that water shortage in the village had become a concern of every resident, and questioned the wisdom of closing some boreholes, which are said to be contaminated. They said the situation had created more health problems in the village because many people had to drink from rivers. It would be better to drink from the boreholes than the river, they argued. The delegation also wondered why it had taken too long to equip boreholes, feeding the village reservoir. Plans to equip the three high yielding boreholes to supply Molepolole were announced this week by the Director of Water Affairs, Mr Gulam Quraishi, who said his department is currently trying to raise funds to meet the cost of equipping the boreholes. On frequent breakdown of boreholes in Molepolole, Mr Quraishi said the boreholes were designed several years ago, and that the population had greatly increased. He said this requires boreholes to work at peak capacity all the time, thus causing frequent breakdowns, particularly in hot weather when water demand is high. The Water Affairs department has plans to drill new boreholes in major villages, and buy standby engines. BOPA [Text] [Gaborone DAILY NEWS in English 20 Nov 81 p 1]

**TSHESEBE WATER SUPPLY**--The North East District Council has strongly objected to a proposal made by the department of Town and Planning that Masunga be the future headquarters of the district. Instead they recommend that Tshesebe be the headquarters. Councillors argued that Tshesebe was a more suitable place. They said if there was inadequate water supply at Tshesebe, water could be pumped from Shashe Dam, which is more than 80 km away. Madabu dam in Zimbabwe was also suggested. Officials of the Town and Planning department told the councillors that three boreholes were recently drilled in Tshesebe, and two of them had dried up, and the third was giving a very low water yield. They also explained that Tshesebe was squeezed between freehold farms and that there would be no room for expansion. The official had then come to conclude that Masunga was a more suitable place. Tshesebe is about 55 km North of Francistown and Masunga is about 72 km north-west of Francistown. The proposal to change the district headquarters was made after the district council resolved that its offices be moved from Francistown. The North East District Council has been operating from Francistown ever since independence. [Text] [Gaborone DAILY NEWS in English 30 Nov 81 p 1]

LITTLE RAINFALL--Despite some showers in Gaborone, reports from the districts indicated that there has been very little rainfall, except in a few villages such as Ramotswa and Molepolole. Reports from Lobatse indicated that Ramotswa has enjoyed a drizzle for the past two days which started from Boatsie crossroads, covering the village and as far as Otse near the Mogobane road along the Lobatse Gaborone road. There have been no reports about ploughing. An official in the Meteorological Department has meanwhile said that under the influence of a well marked high pressure system off the South East Coast of the sub continent, a deep incursion of moist air has been taking place over the country, and with the presence of an intense trough of low pressure over Namibia extending South Eastwards, fairly widespread rains or thunder-storms have occurred over the Southern and Western part of Ramotswa and scattered elsewhere. BOPA [Text] [Gaborone DAILY NEWS in English 24 Nov 81 p 3]

CSO: 5000/5630



## CONTINUING SEA EROSION SEVERELY AFFECTS KETA

Accra DAILY GRAPHIC in English 10 Nov 81 p 1

[Article by Lee Accorley]

[Text]

KETA, formerly a booming commercial town on the South-Central littoral line of Volta Region will soon be inaccessible from the eastern gateway to the region.

This is because the road linking the town with Aflao is being threatened by the sea at a point near Kedzi, a few kilometres from Keta.

It is believed that if the sea continues to pound the area at the rate it is doing presently, the road will become completely unmotorable.

Angry tidal waves have almost washed away a portion of the Aflao-Keta road resulting in the creation of a death trap.

At the week-end, vehicles of some people who

went to the 'Hogbetsotso' celebrations at Anlo got stuck in the sand on the temporarily road constructed by the Ghana Highway Authority (GHA) to serve as the only link between Keta and Aflao.

In an interview with Mr. Alex A. Naego, acting district chief executive for Anlo, he stated that the perennial problems posed by the sea to the shore line "still persist as houses are being pulled down, roads continue to be washed away and the people continue to lose their properties."

The sea has eaten away the foundations of the Keta Fort which houses government departments such as the Prisons, Water and Sewerage Corporation, Central Revenue Department and the Customs and Excise Department.

Half of the building has almost collapsed thus these organizations have been forced to abandon the fort.

Keta by all standards is now a ghost town.

## BRIEFS

WATER PROJECTS--The Minister of Water Energy and Mining, Morena Majara, was on Wednesday taken on a conducted tour of Maqalika Project, in Maseru and other places associated with it. He visited major components of the project which included Maqalika Dam, the extension of water treatment works and the new treated storage reservoir at the Hilton Hotel area. Mr J. Hendrich, Director of the project, told the Minister that the water treatment works had been extended to a total of three million gallons a day. Morena Matete said he appreciated progress and development made at the project and pointed out that he would like to acquaint himself with them. The initial feasibility report for augmentation of water supply to Maseru was prepared by the Swedish Consulting Group (SWECO) in 1976 which recommended that a raw water storage reservoir be formed in the Mejametalana donga to ensure continuity of water supplies during drought periods. Work at Maqalika Dam is progressing well and is scheduled to be completed mid next year. The project will cost M10.3 million of which Lesotho Government will contribute M4.8 million and the remainder will be provided by the African Development Bank as a loan. [Text] [Maseru LESOTHO WEEKLY in English 13 Nov 81 p 4]

CSO: 5000/5623

## MOZAMBIQUE

### DANGER FROM INDISCRIMINATE USE OF PESTICIDES STRESSED

#### Colonialist-Caused Problem

Maputo NOTICIAS in Portuguese 11 Nov 81 p 8

[Article by Antonio Souto]

[Text] More than 10 highly toxic pesticides are being used throughout the country without the slightest provision for safety. Reports have come in of several cases of poisoning through absorption of the chemical products being used, some involving loss of life. Their continuous and intense use in an indiscriminate manner can, in the future, create serious ecological problems and place the public health in danger.

After seeing a considerable increase in the last 2 years of colonialism in the use of chemical products in agriculture with total disregard for control, we saw a significant drop in the import of such products immediately after independence.

The propaganda campaign unleashed by a number of multinational companies to place their products with our farmers was not in the least controlled. Particularly in the case of the innumerable collective cotton farms which, in the last years of colonialism, began to be cultivated on a large scale by the colonists, we saw many Mozambican workers lose their life for having inadvertently ingested lethal quantities of pesticides.

The recovery and development of the agricultural sector, particularly beginning in 1977, again saw an increase in the import of pesticides. Although the propaganda of the multinationals is no longer as intensive as it was, the increase in the use of pesticides is still not being strictly controlled, particularly at the level of large state farms where its application is being made on a large scale.

Many of the pesticides used in Mozambique and other underdeveloped countries are prohibited in the countries where they are produced, specifically in the United States and Western Europe. Not being able to place these chemical products in other markets, the multinationals which manufacture them put on a sales campaign to promote the use of these poisons in countries like ours.

"In Mozambique many farmers are influenced by the way in which propaganda was conducted during the last years of colonialism. Heads of state collective farms and other organizations assert that they have always used those products and,

being familiar with them, will continue to do so," an expert connected with the distribution of these chemical products in our country told us.

We often hear the heads of certain agricultural units say that they will accept responsibility for the goals set for them only if they are guaranteed a certain chemical product and no other in its place. They say they cannot run the risk of not achieving those goals. Thus, needs arise which, ignoring the consequences of uncontrolled use, particularly of pesticides, perpetuate the effects of the commercial propaganda of the multinationals.

"There is a vast range of chemical products, especially pesticides, which can be replaced with others less dangerous," the same expert said and added that this, however, will require work by the National Institute of Agricultural Research to come up with a strict definition of which products to use and under what conditions. He also stressed that this work will have to be accompanied by the publishing of scientific information at various levels of the organizations which have the power to decide on the choice of the chemical products to be used.

Parathion, toxaphene, dieldrin, aldrin, DDVC (with the trade names of vapon, nogos and nuvan), paraquat and Z45T are, on the whole, products defined as very dangerous, and these have been utilized in agriculture without the necessary strict control.

The danger of these poisons stems from the fact that they can be ingested through the mouth or absorbed through the skin. Some of these can kill an adult with just a teaspoonful or less, as in the case of parathion when absorbed through the mouth. Others, although not having immediate toxic effects, accumulate in the body for a certain period of time and, at a given moment, exceed the maximum dose which can be tolerated by man, thus having serious consequences.

#### Dangers Pointed Out

Maputo NOTICIAS in Portuguese 12 Nov 81 p 3

[Article by Antonio Souto]

[Excerpts] A worker on an agricultural farm did not feel well and did not report for work. He stayed home. A few days later his fellow workers learned that he had died. The cause of his death was not known for certain at the time. No one remembered that on the previous evening he had gone to work in a place where highly toxic pesticides were being used. With his clothes sweaty from the efforts of his work he returned home. He felt ill and lay down without undressing.... Thus, he remained long enough for his skin to absorb the quantity necessary to kill him.

Stories of this type with variations one way or the other but giving as the principal cause of death the ingestion of poisonous chemical products are occurring constantly. But they are occurring particularly when an increase in the use of those chemical products is not accompanied by an increasingly strict control of those substances.

These days, some tens of thousands of hectares of land are treated with pesticides. At the end of this decade, hundreds of thousands of hectares will be so treated in the agricultural sector alone.

Many men, particularly workers on collective farms, now have small quantities of toxic substances in their bodies. Continuous contact with those products for some time, not necessarily 10 years, without strict countermeasures being taken, will raise the level of the poisons already absorbed until they exceed the maximum limits which can be tolerated by the human organism. Thus, obviously through prolonged intoxication or with the appearance of a disease with a somewhat common name, the person dies, truly poisoned.

Nowadays, we see in Cabo Delgado, in Gaza, in many localities of this enormous country, new irrigation methods and new agricultural processes. And we see the development of new technology necessary for the growth of our production. However, at times that development is harmful.

Where there was no drinking water, human effort has now constructed large ditches constituting a vast network through which millions of liters of water now circulate bringing water to thousands of hectares of crops.

Water has finally arrived! In the drainage or irrigation ditches children find the swimming pools they never dreamed of; women no longer walk 4 to 8 hours with a can on their head to wash clothes in the nearest creek and bring back the precious liquid lacking in their house; even the animals satisfy their thirst.

The only thing is--this water is poisoned.

Occasionally, people have heard in time that it is dangerous to use that water, but, since they have not been duly advised of the poisoning process, they do not believe it. Others have simply never heard of the poisoning.

The problem is that the persons responsible for the use of those chemical products have not yet accepted the fact that the products are dangerous. In their daily activity, they recognize them as pesticides, know that they are dangerous, take a few precautions, but.... The required control leaves much to be desired.

#### Certain Characteristics of the Poisons

In the case of parathion, one of the most potent poisons, it takes only a sniff to kill an adult; and this is being used in Gaza to combat the sparrow. Perhaps its use is absolutely necessary, but its danger is also too great. When the plane passes over flocks of sparrows, they drop by the thousands; some, however, have not been mortally affected and will die more slowly. Before this happens, however, boys with spears kill them and end up using them for food. Although it is not as effective as the terrible poison contained in parathion, some countries control the bird population on collective farms by using rotating mirror systems and other processes.

Vapona, nogos or nuvam kill a human being instantly as soon as the dosage exceeds 13 milligrams per kg of live weight when ingested by mouth or 75 milligrams when



absorbed through the skin. In the case of an adult who weighs 70 kg, this means that if he ingests 0.91 gram by mouth or 5.25 grams through the skin, his death is almost certain.

Any of these products is apt to be used principally in vegetable gardens. The danger is especially for the workers who apply the pesticide because, after it is scattered on the field, 3 or 4 days are required for it to decompose and lose its toxic effects.

Paraquat is a herbicide we are using on tea. As it is applied everywhere on the soil, danger exists principally for the workers who handle the product. It takes only 2 to 3 grams to kill a person weighing 70 kg. 245T is also very dangerous and, being a shrub killer, it is used in our country principally in pastures to control maqui.

8568

CSO: 5000/5621

## HEAVY RAINS CAUSE EXTENSIVE DAMAGE

Victoria NATION in English 14 Nov 81 pp 1, 2

[Text] *The break to the dry season occurred devastatingly yesterday morning causing an estimated R 1 million worth of damages to farms, flooding of houses and disruption of communication in several parts of Mahé.*

Between midnight and 11.30 this morning, Bon Espoir alone recorded 257.5mm of rainfall — unusual at the start of the rainy season.

At the two farms belonging to the Seychelles Agricultural Development Corporation (SADECO) at Anse aux Pins, crops of cabbages, chinese cabbages, cauliflowers, cucumbers, peppers and other vegetables were completely flooded.

Farm workers toiled in the rain to salvage whatever they could but SADECO's General Manager Mr. Maxime Delpech has estimated R. 500,000 worth of damage on the farms, as well as a loss of four months' supplies to the consumers. Mr. Delpech said another R. 100,000 would be re-

quired to prepare the land again for cultivation.

Plantations at the Grand Anse Research and Food Production Centre suffered the same fate and there have been damages to several other smaller farms, particularly in the Anse Boileau region where chicken coops were flooded and the birds drowned.

Communications between Victoria and South Mahé were disrupted for some time because of floodings all the way from Pointe Larue to the bus depot at Anse aux Pins. SPTC buses from Victoria were forced to drop their passengers at the airport on one occasion.

Reports of damages to bridges were minor although at Anse Boileau, opposite the playing field, a 15-foot gap occurred in the road, blocking traffic in both directions. There were no immediately reported cases of damaged houses although a few boulders were dislodged and rolled downhill.

Upper Les Mamelles bridge was completely overflowed, but the new one on the main road stood firm. In February the original bridge collapsed when 215mm of rain fell in six hours.

Meanwhile the National Consultancy Services have announced that they have virtually completed their study on the structural stability of bridges around Mahé and would be submitting their recommendations soon for repairs on some of them.

As a measure of safety during this morning's downpour, several schools in South Mahé were closed. Air France's early morning flight could not land but flights to Praslin where little rain was reported, continued as normal.

The Meteorological Station at Seychelles International Airport has blamed the sudden downpour on cyclone Bessie-Arnelle which, it said, was now moving away from Diego Garcia.

CSO: 5000/5627

## UNEP EXPLORATORY MISSION STUDIES SEA RESOURCES, POLLUTION

## Work Started

Victoria NATION in English 17 Nov 81 pp 1, 2

[Excerpt] *THE Seychelles Government yesterday morning invited the visiting exploratory mission of the United Nations Environmental Programme (UNEP) to use the Republic as its base in all its subsequent discussions which will culminate in a ministerial signing in 1983 of the Regional Sea Action Plan Convention that the delegation is preparing.*

*Leading a team of four Ministers concerned with the protection of the coastal environment, Dr. Maxime Ferrari, the Minister for Planning and Development, who is also responsible for the environment, extended the invitation while launching a series of talks between UNEP and Seychellois scientists and technicians. Flanking Dr. Ferrari in the National House People's Assembly Hall were the Minister for Transport and Civil Aviation, Mr. Esme Jumeau, the Minister for*

*Agriculture, Mr. Matthew Servina and the Minister for Health, Mr. Karl St. Ange.*

*In an eloquent speech reiterating Seychelles' preoccupation with the effective protection of its environment in the face of phenomenal development, Dr. Ferrari, pointed out that over 99 per cent of the Republic was made up of ocean on which the people depended for its staple diet.*

*The conservation of the marine environment was made even more dramatic and challenging, Minister Ferrari continued, by the possibility that in the foreseeable future Seychelles could discover hydro-carbons beneath its continental shelf in commercially exploitable quantities. If this happened, then the country's seemingly infinite capacity to devise technology appropriate for the harvesting of such riches had to be matched by an inexhaustible effort to prevent*

this discovery from destroying the priceless resources that the unspoilt ocean contained. Despite Seychelles' successes in protecting its wildlife and environment, the Minister cautioned, the country was acutely conscious of the need to avoid complacency. "All is not environmentally perfect in Seychelles," Dr. Ferrari said.

Already there was increasing concern that some of the rivers and streams were becoming polluted and that building development, especially around Victoria, was causing avoidable environmental damage. The Government was worried about the number of trees that were being felled; the monitoring of the use of pesticides had only just begun; the country had been struggling for some time to achieve an ecologically satisfactory method of disposing of domestic refuse and the pile of derelict motor vehicles so evident at the New Port was a continual reminder of the difficulty of reconciling technological progress with sound environmental management, he added. "Generally, our control of pollution is not as systematic as we would wish it to be," Dr. Ferrari stated.

It was because of these concerns, he explained, that the Government was now reviewing the land and marine conservation. It aimed to develop a comprehensive environment policy and practice

which preserved the unique wildlife of Seychelles, controlled pollution and environmental damage, and ensured sustainable utilisation of resources.

The Government was currently reorganising the existing National Parks and Nature Conservancy Commission into a National Environment Commission under the auspices of his Ministry, Dr. Ferrari went on.

Expressing the hope that UNEP would be able to help Seychelles, the Minister noted that although the country had a well earned reputation for its wildlife reserves and conservation policies, it could not rest on past laurels. "We must prove that we are moving with the times and actually achieving the popular rhetoric of integrating development and conservation policies", he urged.

What Seychelles wanted to see come out of the UNEP-Seychelles Government talks was something specific, practical, to which the country, even as a small nation could contribute positively and from which it could benefit, the Minister said. "We believe that locked in as we are in our relationship with the sea, we in Seychelles have an experience that no other state in the region can offer, not even the other island states which have larger populations or more industrialised economies," Dr. Ferrari underlined.

Answering the Seychelles Minister for Planning and Development, the leader of the UNEP mission, Mr. Moncef Riahi of Tunisia, said that Seychelles was presenting them with much less to do than envisaged. Still, he continued, the mission and UNEP had to do something to protect the gems that the Seychelles islands were.

On the other hand, Mr. Riahi explained, UNEP, in its regional seas programme was aiming at the governments' concern in co-operating with each other, self-reliance being a key aspect.



## Contingency Plans Examined

Victoria NATION in English 18 Nov 81 p 2

[Article by Ronnie Jumeau]

[Text]

THE United Nations Environmental Programme (UNEP) exploratory mission now in Seychelles is a major new sea programme, involving eight East African and Indian Ocean countries, launched in Nairobi in early October.

The ambitious environmental project covers a vast coastal and marine area stretching from Somalia in the Horn of Africa to Mozambique in the south of the continent. It also includes Kenya and Tanzania on the East Africa coast and the islands of Madagascar, Mauritius, Seychelles and the Comoros.

Relatively little investigation of the resources and the environmental problems of the region has been carried out, so the fact-finding mission of seven scientists and experts is spending almost two months visiting all eight countries.

Among other things, they will report on oil pollution control, the conservation of coastal and marine resources and ecosystems, pollution levels and hazards to human health, marine and coastal area development, and pollution from industrial sources.

Their reports will serve as the principal working papers of a workshop of experts from the East African region which will probably be held early next spring and which Seychelles has offered to host.

### ACTION PLAN

The workshop's conclusions and the mission's reports will be transformed into the first draft of an East African Action Plan, the final version of which is likely to be agreed on at an intergovernmental conference in 1983, also in Seychelles if the Republic's invitation to serve as the venue is accepted by UNEP.

To date, similar action plans have been adopted in five of the 10 seas in UNEP's Regional Seas Programme: the Mediterranean (1975), the Kuwait Region (1978), West and Central Africa (1981), the Caribbean (1981), and East Asia (1981). Three other regional action plans are expected to be approved in the next six months in the South-East Pacific, the Red Sea and Gulf of Aden, and in the South-West Pacific.

The fact-finding mission consists of a conservation expert, an industrial engineer, a land-use planner, a marine pollution expert, an oil pollution control expert, and a

sanitary engineer. They were selected by seven international organisations, and are led by Moncef Riahi of UNEP's Regional Office for Africa.

#### **SPECIFIC TASKS**

Each of the experts has five or six specific tasks. The conservation expert, for example, must prepare an inventory of coastal and marine resources and assess their economic value according to their present and potential use. He will also identify species, habitats and ecosystems that may require special protection in order to maintain essential ecological processes and life-support systems, preserve genetic diversity, and ensure the sustainable use of living resources.

The industrial engineer is to prepare an inventory of present industrial activities in coastal areas, including the identification of land-based industrial sources of pollution discharging wastes directly or indirectly into coastal waters and estuaries. He must likewise propose national or regional projects for reducing industrial pollution which could be included in the action plan.

As for the land-use planner, his jobs include preparing an inventory of major coastal activities, such as ports, refineries, tourist establishments, and of national

and possibly regional regulations governing national decision makers in coastal development. Another task is to make proposals, on a national and regional level, that could lead to improved land-use planning and management.

The marine pollution expert will assess the present level of marine pollution in the region's coastal areas, changes which may be ascribed to pollution, also identify the most sensitive components of species, habitats and processes in the coastal and marine environment that can be affected by pollution, and finally note and describe national laboratories and institutions engaged in studying marine pollution.

Looking into existing and planned national contingency plans to combat oil pollution in cases of emergency is one of the things the oil pollution control expert will do. He is also to prepare an inventory of the sources of oil pollution in marine and coastal areas, from on-shore and off-shore exploration and exploitation, from petro-chemical plants as well as from shipping, ports, etc.

The sanitary engineer will survey available sewage disposal practices, assess the present waste-load of coastal waters including estuaries, due to the direct discharge of municipal waste (sewage, sludges, solid water), or to

their indirect discharges through rivers and agricultural run-off, or to atmospheric pollution.

If the mission accomplishes what it sets out to do between 5 October and 25 November, the East African governments will have an excellent picture of the resources and environmental problems of their coastal areas, and a clear idea of what to do about them.

## BRIEFS

FILTERS FOR SASOL 2--Brandt Engineering--a specialist in air pollution control--has successfully completed the installation of four sophisticated gas filtering systems at Sasol 2, which is designed to clean up the emissions generated by the furnaces and kilns in the catalyst preparation plant. The contract with the giant oil-from-coal complex was worth about R450 000 to Brandt-Engineering, and was executed by the company's dust control division. The system comprises three big and 12 small bag filter units, and three complex trombone cooling units. The bag filters are compartmentalised for easy maintenance and contain a total of nearly 3 000 individual Mikro-Pulsaire filter bags. The top removal concept used in all these filters make for easy removal and maintenance. According to Brandt Engineering, the filter system has the capacity to treat up to 212 000 cu m/h of contaminated gas and has been designed to reduce particulate emissions to less than 120 mgs/cu metre. [Text] [Johannesburg THE CITIZEN in English 18 Nov 81 p 21]

NATAL OIL DANGER AVERTED--Durban--The danger of oil polluting the beaches on the Natal South Coast at Amanzimtoti and Isipingo, receded yesterday when it looked as if an oil slick close inshore had been broken up. Two vessels were sent from Durban early on Saturday to combat the oil slick, at one time more than eight kilometers long and one kilometer wide, early on Saturday. The slick came from a leakage from an oil rigging buoy off Isipingo. Luckily there were no strong winds to blow the oil inshore although at one stage on Saturday it was only a few hundred metres away from the beach at Isipingo. Two vessels, belonging to a Durban chemical firm, sprayed the slick with foam right through Saturday and yesterday and by late yesterday there were signs that the slick had broken up and the danger of oil pollution on the beaches had been averted. Municipal authorities along the South Coast were particularly concerned about the situation with the holiday season about to begin next week. [Text] [Johannesburg THE CITIZEN in English 30 Nov 81 p 13]

CSO: 5000/5625

DETAILS ON REFORESTATION CAMPAIGN GIVEN

Salisbury THE HERALD in English 4 Dec 81 pp 12, 13, 16, 18

[Article by Bob Linden]

[Text]

**HOW can Zimbabwe meet the challenge to its heritage and future prosperity posed by deforestation?**

The answer must spring first from a political decision — a firm Government commitment to make conservation and re-forestation a national priority.

*ON THIS and the facing page Herald reporter Bob Linden takes a look at the increasing importance of trees and the threat that is facing Zimbabwe if our green heritage is not conserved.*

In Zimbabwe that political will, to halt and then reverse the decline in our national treasury of land, trees and vegetation is strong at all levels,

from the Prime Minister, Mr Mugabe, down to district councils.

Mr Mugabe has committed the nation to conservation, citing the example of past civilisations which fell amid deserts created by thoughtless over-exploitation of the land.

He has set aside the first Saturday in December every year as National Tree Day, urging every Zimbabwean, by personal example, to plant at least one tree at this time.

The energetic and dedicated Minister of Natural Resources and Water Development, Senator Joseph Mafika, is implementing a series of legislative measures designed to protect our natural woodland.

At the same time his ministry, through the Natural Resources Board, is pursuing every possible avenue to educate and inform the people of our country's conservation needs.

The board works closely with the Ministry of Education and Culture in providing material, encouragement and assistance to schools to both teach conservation and help pupils undertake practical projects.

The Minister of Industry and Energy Development, Dr Simba Makoni, has pledged greater efforts and increased investment in developing wood as a fuel

resource, while promoting alternative energy resources such as hydro-electricity, coal, solar energy and biogas.

### ONLY ANSWER

While country-wide electrification, together with the use of "home-made" gas and energy from the sun, may provide the ultimate solution to the fuel crisis, growing more trees is the only practical short-term way forward.

"With an average per capita income in the communal lands of only \$30 a year, it is unthinkable for people to have to pay for fuel, building materials or water," says Mr Brian Fuller of the Forestry Commission.

"We could try enclosing the remaining indigenous forest and managing it on a sustained-yield basis, but although that should form part of the solution,

it will not be enough.

"The productivity of such woodland is only 5 or 10 percent of exotic trees such as eucalypti (gum trees)."

Such gum trees must be planted now, and in vast numbers, in communal lots or on individual holdings all over the country.

While a \$21 million World Bank-funded scheme on this basis is likely to be agreed soon and implemented by the Forestry Commission over the next three years, it will still provide only a small part of our future needs.

The best way forward, the Government believes, is to involve every Zimbabwean organisation and individual — adults and children — in planting, tending and caring for trees.

And that is the vital meaning of National Tree Day tomorrow.

## Zimbabwe To Become a Desert in 30 Years?

**ZIMBABWE** is facing the most serious fuel crisis in the history of human settlement in this part of Africa. We are not running short of electricity, coal or oil — the situation is far more critical than that.

Wood — the main fuel and building material of almost 80 percent of our people — is running out.

The crisis has grave ramifications, threatening the future productivity of the land itself, which is our lifeblood.

For a thousand years and more the people of Zimbabwe were able to live in harmony with the land and its forests. They cleared an area for cultivation and grazing, farmed it for some years, and then moved on, allowing the natural vegetation to regenerate and the land to recover its fertility.

Custom rigidly defined which trees could be cut for firewood and poles, and which must be respected as providers of fruit, food and medicines.

Many kinds of tree were regarded as sacred, and played an important religious role.

But now over a vast area — mainly the former tribal trust lands — pressure resulting largely from the unjust land distribution of the past has led to the land being denuded of the woods which once covered it.

An expanding population, rigidly confined within strict boundaries to areas of mainly poor soil, has been forced to clear every available metre of land for cultivation, and cut down all trees, even sacred ones, in a desperate search for firewood.

### SHRINKING

Over 15 years, from 1963 to 1978, the wooded area in the communal lands decreased from 60 percent to 30 percent — and the latest indications

are that deforestation is accelerating.

It is estimated that about 75 000 ha of woodland are being felled in the communal areas every year.

And the problem is not confined only to the former tribal trust lands. Much commercial farmland, State land and even parts of our national parks are slowly but inexorably being shorn of tree cover.

In his study, *Deforestation in Zimbabwe*, Mr J. R. Whitlow of the University of Zimbabwe's Geography Department lists the following districts as worst affected:

Communal lands: Darwin, Rushinga, Mudzi, Mtoko, Buhara, Gutu, Ndanga, Insiza, Balalima-Mangwe, Nyamandlovu, Nkai, Gokwe and Uru-gwe. In Mtoko, Gokwe, and Buhara, woodland areas were decreasing by up to 10 percent a year.

Commercial farming and general lands: Lomagundi, Makoni, Umfali, Chiredzi, Nuanetsi, Gwanda and Selukwe.



**National parks:** Extensive woodland areas have been destroyed, much of it by elephants, in the west and north-west.

Apart from the immediate effect of this depletion on the rural majority, as they are forced to spend more and more time and energy in an increasingly far-flung search for wood, the very land itself is endangered.

## EROSION

Without woodland to protect, shelter, bind and improve the soil, especially along the banks of watercourses, it rapidly becomes degraded and easily subject to sheet and gully erosion.

Such erosion has already reached a crisis point throughout the vast and densely populated Sabi River catchment region, with millions of tonnes of precious topsoil carried away each year.

The resulting siltage promotes flooding: the Sabi burst its banks both in Zimbabwe and downstream in Mozambique last rainy season. It also endangers present and future irrigation projects, on which the Government is pinning much of its hopes for rural development.

This crisis is not confined to the mighty Sabi and the rivers and streams which feed it: dams throughout the country are filling with silt. Many are now only a few centimetres deep in the dry season.

Mr H. A. Elwell, senior research engineer with the Department of Research and Specialist Services, has warned that in some cultivated areas up to 50 tonnes of soil is being lost from each hectare every year.

As our soil averages

only a metre deep across the country, the danger is glaring.

Mr Elwell quoted a 1974 study estimating that even then the crop potential of 12 percent of commercial farmland had suffered moderate to severe damage, while half the subsistence farming area had undergone irreversible damage.

Unless nationwide action was taken now, he added, half of Zimbabwe could become unproductive desert in 30 to 50 years.

A chilling example of how quickly land abuse can take effect comes from the Bumi-Lupane region of Matabeleland where the Bubi River is fed by the Matatani natural "sponge".

This area, surrounded by forest, soaks up water rapidly during the rains and then releases it in a steady flow.

But this winter the Natural Resources Board reports, the Bubi dried up for a distance of 19 km for the first time in living memory and after one of the wettest summers on record.

The reason? Illegal clearing and streambank cultivation (the sponge is on State forest land) over a period of just three years. And only a handful of people, occupying less than 25 huts, was involved.

"A great deal of blame must fall on previous State policy," says Mr Brian Fuller, the Forestry Commission's education and publicity officer.

## LAND HUNGER

"If land had been more fairly distributed much of the desperate land hunger of today and the resulting hostility to conservation

measures could have been avoided.

"The pressure on our extensive woodland would not be so acute, and we would have had more time to develop solutions and put them in effect."

"But now we are at crisis point."

In many areas people were burning dung and crop residues, which apart from being needed to improve the soil, were poor fuel.

Another study has shown that in some of the crisis areas not even fruit trees such as mangoes were being preserved, so dire had become the need for firewood.

Wood is also the main fuel for the poor of the town, who buy most of their supply from dealers. Here the increasing shortage has led to tree-felling around cities and towns and abuses by some commercial dealers of State and private forest land, and of woods in the communal lands as well.

It is estimated that of the average of over 6 million cubic metres of wood consumed in Zimbabwe every year, five million are used for fuel.

Our natural woods and forests, upon which the main burden of supplying this quantity falls, just cannot regenerate quickly enough to match increasing requirements and survive.

Again, past shortsightedness has contributed to the present crisis.

As Mr J. C. Johnston, of the Department of Energy Resources, points out: "In official circles wood fuel has been neglected as an energy source for too long."

He noted that in 1978 annual investments in en-

ergy from electricity, coal and liquid fuels, used by 2.9 million people, was \$216 million.

Investment in wood fuel, used by 6 million people, with over 5 million entirely dependent on it for cooking and warmth, was just \$1 million.

## WORLDWIDE

The problem is not confined to Zimbabwe. Worldwide, and especially in developing countries, over 90 million people are now acutely short of firewood, with no other fuel available, according to a United Nations Food and Agriculture Organisation report.

A further 800 million are cutting trees faster than they can be renewed.

By the year 2000, the report predicted, there would be a world energy and environment crisis of alarming proportions. About 140 million rural people would be virtually without fuel, while over 2 billion would be clearing woodland faster than it could recover.

In Africa, the continent with the smallest proportion of forest — just 6 percent — the threat is even starker.

The need of expanding populations for more farmland, arable and irresponsible commercial logging and the ever-growing need for firewood and building materials, mean that Africa is losing about 2 million ha of woodland a year.

The outlook seems grim. In Zimbabwe at least, the battle has not been lost and can still be won. But a national effort is required, people and Government working together, if we are to ensure that Zimbabwe remains a green and fruitful land.

[Photo caption] This Kopje was once covered with lovely msasa trees. Now illegal woodcutters have stripped every tree off the hillside]

## Schools Unite To Arrest Soil Erosion

**THREE** Hartley schools this weekend join their efforts when they plant the first of an estimated 50 000 trees aimed at halting continued erosion of the Umfuli River's south bank in the area.

Pupils from Pfupajena, St Francis and Chegutu primary schools will plant the gum trees, donated by farmers in the area, on the river's bank tomorrow.

Although the occasion falls on the National Tree Planting Day that is purely coincidental. There is an urgent need to do something about halting the alarming rate at which the south bank is losing its vegetation and soils, as well as provide future fuel resources for the town.

Residents of Hartley in search of fuel resources, have cut down all the

vegetation on the south bank. Today the south bank provides a startling comparison to the thickly forested north bank — the commercial farming land.

A conservation official, Mr Christopher Edwards, said a decision had been taken to interest the pupils, because they were likely to care for the plants better than adults.

The exercise, he said, would also help to assist the pupils in making them more aware of the need to preserve vegetation and soils.

Hartley town engineer, Mr Isaac Delpoit, said although the gums would

take longer to mature than in other areas, they still had the advantage of developing off-shoots after being cut.

On Tuesday morning, some of the pupils accompanied by Mr Washington Dube, who is actively involved in the scheme visited the denuded area.

The response, from the pupils, to the scheme to do something about the bank had been enthusiastic, Mr Delpoit said.

"This is definitely going to be a school project. It is a continuous exercise because as more trees and plants become available they will be grown on the south bank."

## Essential Crop

**FOUR** people living in a forest area near Lupane were fined recently for cutting down trees illegally, and were ordered by the magistrate to plant twice as many trees as they cut down.

This was an unusual but apt punishment which well illustrates the value of trees to Zimbabwe. The country is losing vast numbers of trees which the annual National Tree Day ceremonies can do much to overcome.

Apart from increasing the numbers of trees, the planting ceremonies should bring home to the people the vital necessity of replacing the wood that is used, legitimately or illegally. It should become the aim of everyone who uses wood to replace that amount at least by being responsible for giving root to a new tree.

**LAKE BALKHASH'S WATER LEVEL DROP CAUSES CONCERN**

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 20 Nov 81 p 4

[Article by M. Sirotkin, engineer and hydrologist: "Once More about Balkhash"]

[Text] Lake Balkhash is a unique reservoir and it is no accident that scientists, journalists, economists and the public are interested in it. However, there is a certain fraction of concern in the discussions about Balkhash more often these days. It has to be admitted that this concern is quite justified. In the last 11 years, since the Kapchagay reservoir was filled, the level of the lake has dropped by more than 1.5 meters and its area and volume have diminished. But in addition to the visible changes, the constantly growing mineralization of the water, especially in its eastern section conceals a great danger. It is impossible in this respect to ignore the sad example of the Aral Sea. We are not concerned with an ordinary reservoir, but one of the largest in Kazakhstan. Its role in the national economy is difficult to overestimate. With a further drop in the Balkhash level, its mineralization is accelerated even more. If one takes into account that the permissible salt concentration in water for technical needs is no more than 3 g per liter (and it is now often close to this figure), it becomes evident that the use of the Balkhash water in the near future will cause definite difficulties.

If we look at the "Plan for the Comprehensive Use and Protection of Water and Land Resources of the Ili River and Lake Balkhash (First Stage)," we see that in the next five-year plan, the rates of development of irrigated lands in the Balkhash basin will increase. Water consumption from the surface sources should be over 5.2 cubic kilometers already in 1985 versus 3.7 in 1970. One should therefore expect a further drop in the water level in the lake. The question of the future of Balkhash itself is consequently raised, in particular, its fishing potentialities.

Natural basins and reservoirs are currently responsible for up to 96% of all the fish caught in Kazakhstan, including about one-third from Balkhash. How may the conducted and planned water management measures in the basin affect the fishing industry? What will the lake be like in the near and distant future? There are many predictions and often they are contradictory, but nevertheless come down to one thing: a further decrease in the lake level is expected, and already in the very near future it will be lower than the 341-meter mark with average mineralization in the western part of about 2 g of salt per liter.

For those who are closely acquainted with the situation in the Balkhash basin it is quite clear that it is impossible to preserve the lake in its current state or one close to it. This follows from the prediction calculations and the more convincing documents such as the mentioned "Plan" and the "Supplemental Studies" to it. It is unreal to count on a growth in water influx into the Balkhash basin from the outside in the visible future.

Taking into consideration the great importance that the western part of the lake has for the national economy, it is expedient to maintain its current dimensions, and even somewhat larger in the future. This requires the construction of an overflow dam in the Uzun-Aral strait. The expediency of building a dam at this stage is substantiated in the "Supplemental Studies." The purpose of this measure is to maintain permissible mineralization of the water in West Balkhash both for drinking and technical water supply since all the large population areas and enterprises are located in this region. Despite the fact that the fishing industry in this case loses over 7 km<sup>2</sup> of water table and, for a certain time, about 30% of the total fish catch, this version as compared to others is the most applicable in this case, the more so since according to the calculations of the institute "Kazgidroproyekt" which stipulate the construction of the mentioned dam, mineralization of water in the western part of the lake will drop. It will only be about a gram of salt per liter of water by the year 2000, while the lake level and the sizes of the catch will rise from 7,500 tons in 1980 to 14,500 in the year 2000.

There are other versions for the development of Balkhash. Some of them suggest immediate creation of several dams in different parts of the lake. Others do not envisage any reconstructions. Without going into them in detail, it should be stressed that only with creation of a dam in the Uzun-Aral strait is the development of the fishing industry not limited by the conditions of the fish habitat and is the most possible. The position of the fishing industry is indefinite in other versions, from fairly optimistic to very low catch volumes.

One can recall in this respect a similar situation in the Aral Sea. In only 4 years (1975-1978) the catches dropped from 5,730 to 300 T. The fish habitat changed to the critical value, and this resulted in their migration to the southern part of the sea where demineralization is still occurring because of river water.

It should not be thought that the process of salinization in Balkhash will occur by other means. There is only a possible difference in the intensity of the process. The hydrogeologists, for example, suggest that further drop in the Balkhash level may accelerate its salinization because of the rise in underground chemical run-off.

It is therefore thought that with the existing situation where the volume of water consumption in the lake basin is rising while the fishing industry is bearing the cost because of a drop in its level, the best method of solving the Balkhash problem is to build a dam in the Uzun-Aral strait.



## NEW KAZAKH AGENCY MONITORS AIR POLLUTION

[Editorial Report] Alma-Ata SOTSIALISTIK QAZAQSTAN in Kazakh 13 August 1981 carries on page 4 a 1,600 word interview under the regular rubric "Man and Nature" with S. Duysenov, head of the KaSSR Administration for Hydro-Meteorology and Environmental Control, by A. Sanbayev. In the interview Duysenov discusses the history of his organization, which began in 1979, as well as current operations, which primarily involve air pollution monitoring. He also discusses in detail the points and laboratories established to monitor air in the republic during the last five-year plan, efforts being made to control pollution at the factories and educate factory managers, the implementation of the decision to clean up Alma-Ata's air, problems caused by leaking gas installations in residential areas and plans for the future. It is evident from Duysenov's answers that air pollution control lags substantially in the KaSSR as compared to large RSFSR cities. Despite, for example, the decision, made some 5 years ago, to clean up Alma-Ata's air, the automatic monitoring station that was to be the focus of activities in this area has still not been installed.

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NORWAY

BRIEFS

NORTH SEA FLOOR CLEANUP—The government is proposing that four million kronor be used for cleaning of the North Sea floor next year. In 1980, 10 million kronor was granted for a test project for cleaning up of the sea floor, and this year funds have been appropriated for surveying of the natural floor conditions and obstacles in important areas of the North Sea. During the test project, 250 tons of trash were taken up. The trash cleaning-up next year will proceed with fishing vessels using trawls or chains with grapnels. It is thought that the trawling work will take from 3-3 1/2 months. By the end of this period, it is assumed that two, or perhaps three blocks will have been cleared. The Oil Directorate will be responsible for the project. [Text] [Oslo AFTENPOSTEN in Norwegian 20 Nov 81 p 8]

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Dec. 31, 1981